

## SEQUENCE LISTING



<110> David Anderson  
Constance Berghs  
Elina Catterton  
Shlomit Edinger  
Linda Gorman  
Xiaojia (Sasha) Guo  
John Herrmann  
Ramesh Kekuda  
Li Li  
Daniel Rieger  
Mei Zhong

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Leu	Glu	Arg	Glu	Ala	Arg	Ile	Cys	Arg	Leu	Leu	Lys	His	Ser	Asn	Ile	
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Val	Arg	Leu	His	Asp	Ser	Ile	Ser	Glu	Glu	Gly	Phe	His	Tyr	Leu	Val	
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Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu			
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Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asn Leu Ile			
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Ala Leu Lys His Pro Trp Val Cys Gln Arg Ser Thr Val Ala Ser Met			
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Leu His Cys His Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu				
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Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys				
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gag gcg tat ggc aag cct gtg gac atc tgg gca tgt ggg gtg atc ctg				625
Glu Ala Tyr Gly Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu				
190                195                200				

tac atc ctg ctc gtg ggc tac cca ccc ttc tgg gac gag gac cag cac Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His 205 210 215 220	673
aag ctg tac cag cag atc aag gct ggt gcc tat gac ttc ccg tcc cct Lys Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro 225 230 235	721
gag tgg gac acc gtc act cct gaa gcc aaa aac ctc atc aac cag atg Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met 240 245 250	769
ctg acc atc aac cct gcc aag cgc atc aca gcc cat gag gcc ctg aag Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys 255 260 265	817
cac ccg tgg gtc tgc caa cgc tcc acg gta gca tcc atg atg cac aga His Pro Trp Val Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg 270 275 280	865
cag gag act gtg gag tgt ctg aaa aag ttc aat gcc agg aga aag ctc Gln Glu Thr Val Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu 285 290 295 300	913
aag gga gcc atc ctc acc acc atg ctg gcc aca cg <sup>g</sup> aat ttc tca gtg Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val 305 310 315	961
ggc aga cag acc acc gct ccg gcc aca atg tcc acc gc <sup>g</sup> gcc tcc ggc Gly Arg Gln Thr Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly 320 325 330	1009
acc acc atg ggg ctg gtg gaa caa gcc aag agt tta ctc aac aag aaa Thr Thr Met Gly Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys 335 340 345	1057
gca gat gga gtc aag ccc cag acg aat agc acc aaa aac agt gca gcc Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala 350 355 360	1105
gcc acc agc ccc aaa ggg acg ctt cct cct gcc gcc ctg gag cct caa Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln 365 370 375 380	1153
acc acc gtc atc cat aac cca gtg gac ggg att aag gag tct tct gac Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp 385 390 395	1201
agt gcc aat acc acc ata gag gat gaa gac gct aaa gcc ccc agg gtc Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Pro Arg Val 400 405 410	1249
ccc gac atc ctg agc tca gtg agg agg ggc tcg gga gcc cca gaa gcc Pro Asp Ile Leu Ser Ser Val Arg Arg Gly Ser Gly Ala Pro Glu Ala 415 420 425	1297
gag ggg ccc ctg ccc tgc cca tct ccg gct ccc ttt agc ccc ctg cca	1345

Glu	Gly	Pro	Leu	Pro	Cys	Pro	Ser	Pro	Ala	Pro	Phe	Ser	Pro	Leu	Pro
430					435						440				
gcc	cca	tcc	ccc	agg	atc	tct	gac	atc	ctg	aac	tct	gtg	aga	agg	ggt
Ala	Pro	Ser	Pro	Arg	Ile	Ser	Asp	Ile	Leu	Asn	Ser	Val	Arg	Arg	Gly
445					450					455					460
tca	gga	acc	cca	gaa	gcc	gag	ggc	ccc	ctc	tca	gcg	ggg	ccc	ccg	ccc
Ser	Gly	Thr	Pro	Glu	Ala	Glu	Gly	Pro	Leu	Ser	Ala	Gly	Pro	Pro	Pro
															475
465															
tgc	ctg	tct	ccg	gct	ctc	cta	ggc	ccc	ctg	tcc	tcc	ccg	tcc	ccc	agg
Cys	Leu	Ser	Pro	Ala	Leu	Leu	Gly	Pro	Leu	Ser	Ser	Pro	Ser	Pro	Arg
															490
480															
atc	tct	gac	atc	ctg	aac	tct	gtg	agg	agg	ggc	tca	ggg	acc	cca	gaa
Ile	Ser	Asp	Ile	Leu	Asn	Ser	Val	Arg	Arg	Gly	Ser	Gly	Thr	Pro	Glu
															505
495															
gcc	gag	ggc	ccc	tcg	cca	gtg	ggg	ccc	ccg	ccc	tgc	cca	tct	ccg	act
Ala	Glu	Gly	Pro	Ser	Pro	Val	Gly	Pro	Pro	Pro	Cys	Pro	Ser	Pro	Thr
															520
510															
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atc	cct	ggc	ccc	ctg	ccc	acc	cca	tcc	cg	aag	cag	gag	atc	att	aag
Ile	Pro	Gly	Pro	Leu	Pro	Thr	Pro	Ser	Arg	Lys	Gln	Glu	Ile	Ile	Lys
															540
525															
530															
acc	acg	gag	cag	ctc	atc	gag	gcc	gtc	aac	aac	gg	gac	ttt	gag	gcc
Thr	Thr	Glu	Gln	Leu	Ile	Glu	Ala	Val	Asn	Asn	Gly	Asp	Phe	Glu	Ala
															555
545															
550															
tac	gcf	aaa	atc	tgt	gac	cca	ggg	ctg	acc	tcc	ttt	gag	cct	gaa	gca
Tyr	Ala	Lys	Ile	Cys	Asp	Pro	Gly	Leu	Thr	Ser	Phe	Glu	Pro	Glu	Ala
															570
560															
565															
ctg	ggc	aac	ctg	gtt	gaa	ggg	atg	gac	ttc	cac	aga	ttc	tac	ttc	gag
Leu	Gly	Asn	Leu	Val	Glu	Gly	Met	Asp	Phe	His	Arg	Phe	Tyr	Phe	Glu
															585
575															
580															
aac	ctg	ctg	gcc	aag	aac	agc	aag	cca	atc	cac	acg	acc	atc	ctg	aac
Asn	Leu	Leu	Ala	Lys	Asn	Ser	Lys	Pro	Ile	His	Thr	Thr	Ile	Leu	Asn
															600
590															
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cca	cac	gtg	cac	gtc	att	gga	gag	gat	gcc	gcc	tgc	atc	gct	tac	atc
Pro	His	Val	His	Val	Ile	Gly	Glu	Asp	Ala	Ala	Cys	Ile	Ala	Tyr	Ile
															620
605															
610															
615															
cg	ctc	acg	cag	tac	att	gac	ggg	cag	ggc	ccc	ccg	acc	agc	cag	
Arg	Leu	Thr	Gln	Tyr	Ile	Asp	Gly	Gln	Gly	Arg	Pro	Arg	Thr	Ser	Gln
															635
625															
630															
tct	gag	gag	acc	cgc	gtg	tgg	cac	cgc	cgc	gac	ggc	aag	tgg	cag	aac
Ser	Glu	Glu	Thr	Arg	Val	Trp	His	Arg	Arg	Asp	Gly	Lys	Trp	Gln	Asn
															650
640															
645															
gtg	cac	ttc	cac	tgc	tgc	ggc	gct	cct	gtg	gcc	ccg	ctg	cag	tga	
Val	His	Phe	His	Cys	Ser	Gly	Ala	Pro	Val	Ala	Pro	Leu	Gln		2014

655

660

665

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Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val  
20 25 30  
Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys  
35 40 45  
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile  
50 55 60  
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile  
65 70 75 80  
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly  
85 90 95  
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp  
100 105 110  
Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His  
115 120 125  
Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
130 135 140  
Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
145 150 155 160  
Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
165 170 175  
Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
180 185 190  
Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
195 200 205  
Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
210 215 220  
Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
225 230 235 240  
Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
245 250 255  
Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val

260	265	270
Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val		
275	280	285
Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile		
290	295	300
Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr		
305	310	315
Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly		
325	330	335
Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val		
340	345	350
Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro		
355	360	365
Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile		
370	375	380
His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr		
385	390	395
Thr Ile Glu Asp Glu Asp Ala Lys Ala Pro Arg Val Pro Asp Ile Leu		
405	410	415
Ser Ser Val Arg Arg Gly Ser Gly Ala Pro Glu Ala Glu Gly Pro Leu		
420	425	430
Pro Cys Pro Ser Pro Ala Pro Phe Ser Pro Leu Pro Ala Pro Ser Pro		
435	440	445
Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro		
450	455	460
Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys Leu Ser Pro		
465	470	475
Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile Ser Asp Ile		
485	490	495
Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro		
500	505	510
Ser Pro Val Gly Pro Pro Pro Cys Pro Ser Pro Thr Ile Pro Gly Pro		
515	520	525
Leu Pro Thr Pro Ser Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln		
530	535	540
Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile		
545	550	555
Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu		

565	570	575	
Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala			
580	585	590	
Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His			
595	600	605	
Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln			
610	615	620	
Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr			
625	630	635	640
Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His			
645	650	655	
Cys Ser Gly Ala Pro Val Ala Pro Leu Gln			
660	665		
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atg gcc acc acg gtg acc tgc acc cgc ttc acc gac gag tac cag ctc			48
Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu			
1	5	10	15
tac gag gat att ggc aag ggg qct ttc tct gtg gtc cga cgc tgt gtc			96
Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val			
20	25	30	
aag ctc tgc acc ggc cat gag tat gca gcc aag atc atc aac acc aag			144
Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys			
35	40	45	
aag ctg tca gcc aga gat cac cag aag ctg gag aga gag gct cggt atc			192
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile			
50	55	60	
tgc cgc ctt ctg aag cat tcc aac atc gtg cgt ctc cac gac agc atc			240
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile			
65	70	75	80
tcc gag gag ggc ttc cac tac ctg gtc ttc gat ctg gtc act ggt ggg			288
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly			
85	90	95	
gag ctc ttt gaa gac att gtg gcg aga gag tac tac agc gag gct gat			336
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp			
100	105	110	

gcc agt cac tgt atc cag cag atc ctg gag gcc gtt ctc cat tgt cac Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His	115	120	125	384
caa atg ggg gtc gtc cac aga gac ctc aag ccg gag aac ctg ctt ctg Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu	130	135	140	432
gcc agc aag tgc aaa ggg gct gca gtg aag ctg gca gac ttc ggc cta Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu	145	150	155	480
gct atc gag gtg cag ggg gac cag cag gca tgg ttt ggt ttc gct ggc Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly	165	170	175	528
aca cca ggc tac ctg tcc cct gag gtc ctt cgc aaa gag gcg tat ggc Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly	180	185	190	576
aag cct gtg gac atc tgg gca tgt ggg gtg atc ctg tac atc ctg ctc Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu	195	200	205	624
gtg ggc tac cca ccc ttc tgg gac gag gac cag cac aag ctg tac cag Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln	210	215	220	672
cag atc aag gct ggt gcc tat gac ttc ccg tcc cct gag tgg gac acc Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr	225	230	235	720
gtc act cct gaa gcc aaa aac ctc atc aac cag atg ctg acc atc aac Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn	245	250	255	768
cct gcc aag cgc atc aca gcc cat gag gcc ctg aag cac ccg tgg gtc Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val	260	265	270	816
tgc caa cgc tcc acg gta gca tcc atg atg cac aga cag gag act gtg Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val	275	280	285	864
gag tgt ctg aaa aag ttc aat gcc agg aga aag ctc aag gga gcc atc Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile	290	295	300	912
ctc acc acc atg ctg gcc aca cgg aat ttc tca gtg ggc aga cag acc Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr	305	310	315	960
acc gct ccg gcc aca atg tcc acc gcg gcc tcc ggc acc acc atg ggg Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly	325	330	335	1008

ctg gtg gaa caa gcc aag agt tta ctc aac aag aaa gca gat gga gtc Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val	340	345	350	1056
aag ccc cag acg aat agc acc aaa aac agt gca gcc gcc acc agc ccc Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro	355	360	365	1104
aaa ggg acg ctt cct cct gcc gcc ctg gag cct caa acc acc acc gtc atc Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile	370	375	380	1152
cat aac cca gtg gac ggg att aag gag tct tct gac agt gcc aat acc His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr	385	390	395	400
acc ata gag gat gaa gac gct aaa gcc ccc agg gtc ccc gac atc ctg Thr Ile Glu Asp Glu Asp Ala Lys Ala Pro Arg Val Pro Asp Ile Leu	405	410	415	1248
agc tca gtg agg agg ggc tcg gga gcc cca gaa gcc gag ggg ccc ctg Ser Ser Val Arg Arg Gly Ser Gly Ala Pro Glu Ala Glu Gly Pro Leu	420	425	430	1296
ccc tgc cca tct ccg gct ccc ttt agc ccc ctg cca gcc cca tcc ccc Pro Cys Pro Ser Pro Ala Pro Phe Ser Pro Leu Pro Ala Pro Ser Pro	435	440	445	1344
agg atc tct gac atc ctg aac tct gtg aga agg ggt tca gga acc cca Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro	450	455	460	1392
gaa gcc gag ggc ccc ctc tca gcg ggg ccc ccg ccc tgc ctg tct ccg Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys Leu Ser Pro	465	470	475	480
gct ctc cta ggc ccc ctg tcc tcc ccg tcc ccc agg atc tct gac atc Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile Ser Asp Ile	485	490	495	1488
ctg aac tct gtg agg agg ggc tca ggg acc cca gaa gcc gag ggc ccc Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro	500	505	510	1536
tcg cca gtg ggg ccc ccg ccc tgc cca tct ccg act atc cct ggc ccc Ser Pro Val Gly Pro Pro Cys Pro Ser Pro Thr Ile Pro Gly Pro	515	520	525	1584
ctg ccc acc cca tcc ccg aag cag gag atc att aag acc acg gag cag Leu Pro Thr Pro Ser Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln	530	535	540	1632
ctc atc gag gcc gtc aac aac ggt gac ttt gag gcc tac gcg aaa atc Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile	545	550	555	1680
tgt gac cca ggg ctg acc tcg ttt gag cct gaa gca ctg ggc aac ctg				1728

Cys	Asp	Pro	Gly	Leu	Thr	Ser	Phe	Glu	Pro	Glu	Ala	Leu	Gly	Asn	Leu				
														565	570	575			
gtt	gaa	ggg	atg	gac	ttc	cac	aga	ttc	tac	ttc	gag	aac	ctg	ctg	gcc	1776			
Val	Glu	Gly	Met	Asp	Phe	His	Arg	Phe	Tyr	Phe	Glu	Asn	Leu	Leu	Ala				
																580	585	590	
aag	aac	agc	aag	cca	atc	cac	acg	acc	atc	ctg	aac	cca	cac	gtg	cac	1824			
Lys	Asn	Ser	Lys	Pro	Ile	His	Thr	Thr	Ile	Leu	Asn	Pro	His	Val	His				
																595	600	605	
gtc	att	gga	gag	gat	gcc	gcc	tgc	atc	gct	tac	atc	cg	ctc	acg	cag	1872			
Val	Ile	Gly	Glu	Asp	Ala	Ala	Cys	Ile	Ala	Tyr	Ile	Arg	Leu	Thr	Gln				
																610	615	620	
tac	att	gac	ggg	cag	ggc	cg	ccc	cg	acc	agc	cag	tct	gag	gag	acc	1920			
Tyr	Ile	Asp	Gly	Gln	Gly	Arg	Pro	Arg	Thr	Ser	Gln	Ser	Glu	Glu	Thr				
																625	630	635	640
cgc	gtg	tgg	cac	cgc	cgc	gac	ggc	aag	tgg	cag	aac	gtg	cac	ttc	cac	1968			
Arg	Val	Trp	His	Arg	Arg	Asp	Gly	Lys	Trp	Gln	Asn	Val	His	Phe	His				
																645	650	655	
tgc	tcg	ggc	g	cct	gtg	gcc	ccg	ctg	cag							1998			
Cys	Ser	Gly	Ala	Pro	Val	Ala	Pro	Leu	Gln										
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Met	Ala	Thr	Thr	Val	Thr	Cys	Thr	Arg	Phe	Thr	Asp	Glu	Tyr	Gln	Leu				
																1	5	10	15
Tyr	Glu	Asp	Ile	Gly	Lys	Gly	Ala	Phe	Ser	Val	Val	Arg	Arg	Cys	Val				
																20	25	30	
Lys	Leu	Cys	Thr	Gly	His	Glu	Tyr	Ala	Ala	Lys	Ile	Ile	Asn	Thr	Lys				
																35	40	45	
Lys	Leu	Ser	Ala	Arg	Asp	His	Gln	Lys	Leu	Glu	Arg	Glu	Ala	Arg	Ile				
																50	55	60	
Cys	Arg	Leu	Leu	Lys	His	Ser	Asn	Ile	Val	Arg	Leu	His	Asp	Ser	Ile				
																65	70	75	80
Ser	Glu	Glu	Gly	Phe	His	Tyr	Leu	Val	Phe	Asp	Leu	Val	Thr	Gly	Gly				
																85	90	95	
Glu	Leu	Phe	Glu	Asp	Ile	Val	Ala	Arg	Glu	Tyr	Tyr	Ser	Glu	Ala	Asp				
																100	105	110	
Ala	Ser	His	Cys	Ile	Gln	Gln	Ile	Leu	Glu	Ala	Val	Leu	His	Cys	His				
																115	120	125	

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
 130 135 140  
 Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
 145 150 155 160  
 Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
 165 170 175  
 Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
 180 185 190  
 Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
 195 200 205  
 Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
 210 215 220  
 Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
 225 230 235 240  
 Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
 245 250 255  
 Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val  
 260 265 270  
 Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val  
 275 280 285  
 Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile  
 290 295 300  
 Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr  
 305 310 315 320  
 Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly  
 325 330 335  
 Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val  
 340 345 350  
 Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro  
 355 360 365  
 Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile  
 370 375 380  
 His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr  
 385 390 395 400  
 Thr Ile Glu Asp Glu Asp Ala Lys Ala Pro Arg Val Pro Asp Ile Leu  
 405 410 415  
 Ser Ser Val Arg Arg Gly Ser Gly Ala Pro Glu Ala Glu Gly Pro Leu  
 420 425 430

Pro Cys Pro Ser Pro Ala Pro Phe Ser Pro Leu Pro Ala Pro Ser Pro  
     435                        440                        445  
  
 Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro  
     450                        455                        460  
  
 Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys Leu Ser Pro  
     465                        470                        475                        480  
  
 Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile Ser Asp Ile  
     485                        490                        495  
  
 Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro  
     500                        505                        510  
  
 Ser Pro Val Gly Pro Pro Pro Cys Pro Ser Pro Thr Ile Pro Gly Pro  
     515                        520                        525  
  
 Leu Pro Thr Pro Ser Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln  
     530                        535                        540  
  
 Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile  
     545                        550                        555                        560  
  
 Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu  
     565                        570                        575  
  
 Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala  
     580                        585                        590  
  
 Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His  
     595                        600                        605  
  
 Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln  
     610                        615                        620  
  
 Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr  
     625                        630                        635                        640  
  
 Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His  
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tac gag gat att ggc aag ggg gct ttc tct gtg gtc cga cgc tgt gtc Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val 20 25 30				96
aag ctc tgc acc ggc cat gag tat gca gcc aag atc atc aac acc aag Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys 35 40 45				144
aag ctg tca gcc aga gat cac cag aag ctg gag aga gag gct cggt atc Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile 50 55 60				192
tgc cgc ctt ctg aag cat tcc aac atc gtg cgt ctc cac gac agc atc Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile 65 70 75 80				240
tcc gag gag ggc ttc cac tac ctg gtc ttc gat ctg gtc act ggt ggg Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly 85 90 95				288
gag ctc ttt gaa gac att gtg gcg aga gag tac tac agc gag gct gat Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp 100 105 110				336
gcc agt cac tgt atc cag cag atc ctg gag gcc gtt ctc cat tgt cac Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His 115 120 125				384
caa atg ggg gtc gtc cac aga gac ctc aag ccg gag aac ctg ctt ctg Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu 130 135 140				432
gcc agc aag tgc aaa ggg gct gca gtg aag ctg gca gac ttc ggc cta Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu 145 150 155 160				480
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aag cct gtg gac atc tgg gca tgt ggg gtg atc ctg tac atc ctg ctc Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu 195 200 205				624
gtg ggc tac cca ccc ttc tgg gac gag gac cag cac aag ctg tac cag Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln 210 215 220				672
cag atc aag gct ggt gcc tat gac ttc ccg tcc cct gag tgg gac acc Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr 225 230 235 240				720

gtc act cct gaa gcc aaa aac ctc atc aac cag atg ctg acc atc aac Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn	245	250	255	768	
cct gcc aag cgc atc aca gcc cat gag gcc ctg aag cac ccg tgg gtc Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val	260	265	270	816	
tgc caa cgc tcc acg gta gca tcc atg atg cac aga cag gag act gtg Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val	275	280	285	864	
gag tgt ctg aaa aag ttc aat gcc agg aga aag ctc aag gga gcc atc Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile	290	295	300	912	
ctc acc acc atg ctg gcc aca cgg aat ttc tca gcc aag agt tta ctc Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu	305	310	315	320	960
aac aag aaa gca gat gga gtc aag ccc cag acg aat agc acc aaa aac Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn	325	330	335		1008
agt gca gcc gcc acc agc ccc aaa ggg acg ctt cct cct gcc gcc ctg Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu	340	345	350		1056
gag cct caa acc acc gtc atc cat aac cca gtg gac ggg att aag gag Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu	355	360	365		1104
tct tct gac agt gcc aat acc acc ata gag gat gaa gac gct aaa gcc Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala	370	375	380		1152
ccc agg atc tct gac atc ctg aac tct gtg aga agg ggt tca gga acc Pro Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr	385	390	395	400	1200
cca gaa gcc gag ggc ccc ctc tca gcg ggg ccc ccg ccc tgc ctg tct Pro Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys Leu Ser	405	410	415		1248
ccg gct ctc cta ggc ccc ctg tcc tcc ccg tcc ccc agg atc tct gac Pro Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile Ser Asp	420	425	430		1296
atc ctg aac tct gtg agg agg ggc tca ggg acc cca gaa gcc gag ggc Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly	435	440	445		1344
ccc tcg cca gtg ggg ccc ccg ccc tgc cca tct ccg act atc cct ggc Pro Ser Pro Val Gly Pro Pro Cys Pro Ser Pro Thr Ile Pro Gly	450	455	460		1392

ccc ctg ccc acc cca tcc cgg aag cag gag atc att aag acc acg gag		1440	
Pro Leu Pro Thr Pro Ser Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu			
465	470	475	480
cag ctc atc gag gcc gtc aac aac ggt gac ttt gag gcc tac gcg aaa		1488	
Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys			
485	490	495	
atc tgt gac cca ggg ctg acc tcg ttt gag cct gaa gca ctg ggc aac		1536	
Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn			
500	505	510	
ctg gtt gaa ggg atg gac ttc cac aga ttc tac ttc gag aac ctg ctg		1584	
Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu			
515	520	525	
gcc aag aac agc aag ccg atc cac acg acc atc ctg aac cca cac gtg		1632	
Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val			
530	535	540	
cac gtc att gga gag gat gcc gcc tgc atc gct tac atc cgg ctc acg		1680	
His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr			
545	550	555	560
cag tac att gac ggg cag ggc cgg ccc cgc acc agc cag tct gag gag		1728	
Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu			
565	570	575	
acc cgc gtg tgg cac cgc cgc gac ggc aag tgg cag aac gtg cac ttc		1776	
Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe			
580	585	590	
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His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln			
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Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys			
35	40	45	
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile			
50	55	60	
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile			
65	70	75	80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly  
                   85                         90                  95  
  
 Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp  
                   100                     105                 110  
  
 Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His  
                   115                     120                 125  
  
 Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
                   130                     135                 140  
  
 Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
                   145                     150                 155                 160  
  
 Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
                   165                     170                 175  
  
 Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
                   180                     185                 190  
  
 Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
                   195                     200                 205  
  
 Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
                   210                     215                 220  
  
 Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
                   225                     230                 235                 240  
  
 Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
                   245                     250                 255  
  
 Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val  
                   260                     265                 270  
  
 Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val  
                   275                     280                 285  
  
 Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile  
                   290                     295                 300  
  
 Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu  
                   305                     310                 315                 320  
  
 Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn  
                   325                     330                 335  
  
 Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu  
                   340                     345                 350  
  
 Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu  
                   355                     360                 365  
  
 Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala  
                   370                     375                 380

Pro Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr  
 385                    390                    395                    400  
  
 Pro Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys Leu Ser  
 405                    410                    415  
  
 Pro Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile Ser Asp  
 420                    425                    430  
  
 Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly  
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 Pro Ser Pro Val Gly Pro Pro Pro Cys Pro Ser Pro Thr Ile Pro Gly  
 450                    455                    460  
  
 Pro Leu Pro Thr Pro Ser Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu  
 465                    470                    475                    480  
  
 Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys  
 485                    490                    495  
  
 Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn  
 500                    505                    510  
  
 Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu  
 515                    520                    525  
  
 Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val  
 530                    535                    540  
  
 His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr  
 545                    550                    555                    560  
  
 Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu  
 565                    570                    575  
  
 Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe  
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 Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu  
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 tac gag gat att ggc aag ggg gct ttc tct gtg gtc cga cgc tgt gtc      96

Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val			
20	25	30	
aag ctc tgc acc ggc cat gag tat gca gcc aag atc atc aac acc acc aag			144
Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys			
35	40	45	
aag ctg tca gcc aga gat cac cag aag ctg gag aga gag gct cggt atc			192
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile			
50	55	60	
tgc cgc ctt ctg aag cat tcc aac atc gtg cgt ctc cac gac agc atc			240
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile			
65	70	75	80
tcc gag gag ggc ttc cac tac ctg gtc ttc gat ctg gtc act ggt ggg			288
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly			
85	90	95	
gag ctt ttt gaa gac att gtg gcg aga gag tac tac agc gag gct gat			336
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp			
100	105	110	
gcc agt cac tgt atc cag cag atc ctg gag gcc gtt ctc cat tgt cac			384
Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His			
115	120	125	
caa atg ggg gtc gtc cac aga gac ctc aag ccg gag aac ctg ctt ctg			432
Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu			
130	135	140	
gcc agc aag tgc aaa ggg gct gca gtg aag ctg gca gac ttc ggc cta			480
Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu			
145	150	155	160
gct atc gag gtg cag ggg gac cag cag gca tgg ttt ggt ttc gct ggc			528
Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly			
165	170	175	
aca cca ggc tac ctg tcc cct gag gtc ctt cgc aaa gag gcg tac ggc			576
Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly			
180	185	190	
aag ccc gtg gac atc tgg gca tgt ggg gtg atc ctg tac atc ctg ctc			624
Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu			
195	200	205	
gtg ggc tac cca ccc ttc tgg gac gag gac cag cac aag ctg tac cag			672
Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln			
210	215	220	
cag atc aag gct ggt gcc tat gac ttc ccg tcc cct gag tgg gac acc			720
Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr			
225	230	235	240
gtc act cct gaa gcc aaa aac ctc atc aac cag atg ctg acc atc aac			768
Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn			

	245	250	255	
cct gcc aag cgc atc aca gcc cat gag gcc ctg aag cac ccg tgg gtc Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val	260	265	270	816
tgc caa cgc tcc acg gta gca tcc atg atg cac aga cag gag act gtg Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val	275	280	285	864
gag tgt ctg aaa aag ttc aat gcc agg aga aag ctc aag gga gcc atc Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile	290	295	300	912
ctc acc acc atg ctg gcc aca cggtt aat ttc tca gcc aag agt tta ctc Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu	305	310	315	960
320				
aac aag aaa gca gat gga gtc aag ccc cag acg aat agc acc aaa aac Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn	325	330	335	1008
340				
agt gca gcc gcc acc agc ccc aaa ggg acg ctt cct cct gcc gcc ctg Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu	345	350	350	1056
355				
gag cct caa acc acc gtc atc cat aac cca gtg gac ggg att aag gag Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu	360	365	365	1104
370				
tct tct gac agt gcc aat acc acc ata gag gat gaa gac gct aaa gcc Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala	375	380	380	1152
385				
ccc agg gtc ccc gac atc ctg agc tca gtg agg agg ggc tcg gga gcc Pro Arg Val Pro Asp Ile Leu Ser Ser Val Arg Arg Gly Ser Gly Ala	390	395	400	1200
405				
cca gaa gcc gag ggg ccc ctg ccc tgc cca tct ccg gct ccc ttt agc Pro Glu Ala Glu Gly Pro Leu Pro Cys Pro Ser Pro Ala Pro Phe Ser	410	415	415	1248
420				
ccc ctg cca gcc cca tcc ccc agg atc tct gac atc ctg aac tct gtg Pro Leu Pro Ala Pro Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val	425	430	430	1296
435				
aga agg ggt tca gga acc cca gaa gcc gag ggc ccc ctc tca gcg ggg Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro Leu Ser Ala Gly	440	445	445	1344
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ccc ccg ccc tgc ctg tct ccg gct ctc cta ggc ccc ctg tcc tcc ccg Pro Pro Pro Cys Leu Ser Pro Ala Leu Leu Gly Pro Leu Ser Ser Pro	455	460	460	1392
465				
tcc ccc agg atc tct gac atc ctg aac tct gtg agg agg ggc tca ggg Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly	470	475	480	1440

acc cca gaa gcc gag ggc ccc tcg cca gtg ggg ccc ccg ccc tgc cca		1488	
Thr Pro Glu Ala Glu Gly Pro Ser Pro Val Gly Pro Pro Pro Cys Pro			
485	490	495	
tct ccg act atc cct ggc ccc ctg ccc acc cca tcc cg aag cag gag		1536	
Ser Pro Thr Ile Pro Gly Pro Leu Pro Thr Pro Ser Arg Lys Gln Glu			
500	505	510	
atc att aag acc acg gag cag ctc atc gag gcc gtc aac aac ggt gac		1584	
Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp			
515	520	525	
ttt gag gcc tac gcg aaa atc tgt gac cca ggg ctg acc tcg ttt gag		1632	
Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu			
530	535	540	
cct gaa gca ctg ggc aac ctg gtt gaa ggg atg gac ttc cac aga ttc		1680	
Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe			
545	550	555	560
tac ttc gag aac ctg ctg gcc aag aac agc aag cca atc cac acg acc		1728	
Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr			
565	570	575	
atc ctg aac cca cac gtg cac gtc att gga gag gat gcc gcc tgc atc		1776	
Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile			
580	585	590	
gct tac atc cgg ctc acg cag tac att gac ggg cag ggc cgg ccc cgc		1824	
Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg			
595	600	605	
acc agc cag tct gag gag acc cgc gtg tgg cac cgc cgc gac ggc aag		1872	
Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys			
610	615	620	
tgg cag aat gtg cac ttc cac tgc tcg ggc gcg cct gtg gcc ccg ctg		1920	
Trp Gln Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu			
625	630	635	640
cag		1923	
Gln			

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 Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile  
     50                        55                        60  
  
 Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile  
     65                        70                        75                        80  
  
 Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly  
     85                        90                        95  
  
 Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp  
     100                       105                       110  
  
 Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His  
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 Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
     130                       135                       140  
  
 Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
     145                       150                       155                       160  
  
 Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
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 Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
     180                       185                       190  
  
 Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
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 Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
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 Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
     225                       230                       235                       240  
  
 Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
     245                       250                       255  
  
 Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val  
     260                       265                       270  
  
 Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val  
     275                       280                       285  
  
 Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile  
     290                       295                       300  
  
 Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu  
     305                       310                       315                       320  
  
 Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn  
     325                       330                       335

Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu  
                   340                     345                 350  
  
 Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu  
                   355                     360                 365  
  
 Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala  
                   370                     375                 380  
  
 Pro Arg Val Pro Asp Ile Leu Ser Ser Val Arg Arg Gly Ser Gly Ala  
                   385                     390                 395                 400  
  
 Pro Glu Ala Glu Gly Pro Leu Pro Cys Pro Ser Pro Ala Pro Phe Ser  
                   405                     410                 415  
  
 Pro Leu Pro Ala Pro Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val  
                   420                     425                 430  
  
 Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro Leu Ser Ala Gly  
                   435                     440                 445  
  
 Pro Pro Pro Cys Leu Ser Pro Ala Leu Leu Gly Pro Leu Ser Ser Pro  
                   450                     455                 460  
  
 Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly  
                   465                     470                 475                 480  
  
 Thr Pro Glu Ala Glu Gly Pro Ser Pro Val Gly Pro Pro Pro Cys Pro  
                   485                     490                 495  
  
 Ser Pro Thr Ile Pro Gly Pro Leu Pro Thr Pro Ser Arg Lys Gln Glu  
                   500                     505                 510  
  
 Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp  
                   515                     520                 525  
  
 Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu  
                   530                     535                 540  
  
 Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe  
                   545                     550                 555                 560  
  
 Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr  
                   565                     570                 575  
  
 Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile  
                   580                     585                 590  
  
 Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg  
                   595                     600                 605  
  
 Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys  
                   610                     615                 620  
  
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Gln

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    1           5           10          15

tac gag gat att ggc aag ggg gct ttc tct gtg gtc cga cgc tgt gtc      96
Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val
    20          25          30

aag ctc tgc acc ggc cat gag tat gca gcc aag atc atc aac acc aag      144
Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys
    35          40          45

aag ctg tca gcc aga gat cac cag aag ctg gag aga gag gct cgg atc      192
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile.
    50          55          60

tgc cgc ctt ctg aag cat tcc aac atc gtg cgt ctc cac gac agc atc      240
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile
    65          70          75          80

tcc gag gag ggc ttc cac tac ctg gtc ttc gat ctg gtc act ggt ggg      288
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly
    85          90          95

gag ctc ttt gaa gac att gtg gcg aga gag tac tac agc gag gct gat      336
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp
    100         105         110

gcc agt cac tgt atc cag cag atc ctg gag gcc gtt ctc cat tgt cac      384
Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His
    115         120         125

caa atg ggg gtc cac aga gac ctc aag ccg gag aac ctg ctt ctg      432
Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu
    130         135         140

gcc agc aag tgc aaa ggg gct gca gtg aag ctg gca gac ttc ggc cta      480
Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu
    145         150         155         160

gct atc gag gtg cag ggg gac cag cag gca tgg ttt ggt ttc gct ggc      528
Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly
    165         170         175

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aca cca ggc tac ctg tcc cct gag gtc ctt cgc aaa gag gcg tat ggc			576
Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly			
180	185	190	
aag cct gtg gac atc tgg gca tgt ggg gtg atc ctg tac atc ctg ctc			624
Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu			
195	200	205	
gtg ggc tac cca ccc ttc tgg gac gag gac cag cac aag ctg tac cag			672
Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln			
210	215	220	
cag atc aag gct ggt gcc tat gac ttc ccg tcc cct gag tgg gac acc			720
Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr			
225	230	235	240
gtc act cct gaa gcc aaa aac ctc atc aac cag atg ctg acc atc aac			768
Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn			
245	250	255	
cct gcc aag cgc atc aca gcc cat gag gcc ctg aag cac ccg tgg gtc			816
Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val			
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Cys Gln Arg Ser Thr Val Ala Ser			
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Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys			
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Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile			
50	55	60	
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile			
65	70	75	80
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly			
85	90	95	
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp			
100	105	110	
Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His			
115	120	125	

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
225 230 235 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
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Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val  
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ctctgtggtc cgacgctgtg tcaagctctg caccggccat gagtatgcag ccaagatcat 180

caacaccaag aagctgtcag ccagagatca ccagaagctg gagagagagg ctcggatctg 240

ccgccttgtg aagcattcca acatcgctcg tctccacgac agcatctccg aggagggctt 300

ccactacctg gtcttcgatc tggtcactgg tggggagctc tttgaagaca ttgtggcgag 360

agagtactac agcgaggctg atgccagtca ctgttatccag cagatcctga ggccgttctc 420

cattgtcacc aa atg ggg gtc gtc cac aga gac ctc aag ccg gag aac ctg 471

Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu



agc ccc aaa ggg acg ctt cct cct gcc gcc ctg gag cct caa acc acc Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr 240 245 250	1191
gtc atc cat aac cca gtg gac ggg att aag gag tct tct gac agt gcc Val Ile His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala 255 260 265	1239
aat acc acc ata gag gat gaa gac gct aaa gcc cg <sup>g</sup> aag cag gag atc Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile 270 275 280 285	1287
att aag acc acg gag cag ctc atc gag gcc gtc aac aac ggt gac ttt Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe 290 295 300	1335
gag gcc tac gc <sup>g</sup> aaa atc tgt gac cca ggg ctg acc tcg ttt gag cct Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro . 305 310 315	1383
gaa gca ctg ggc aac ctg gtt gaa ggg atg gac ttc cac aga ttc tac Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr 320 325 330	1431
t <sup>c</sup> tc gag aac ctg ctg gcc aag aac agc aag cc <sup>g</sup> atc cac acg acc atc Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile 335 340 345	1479
ctg aac cca cac gtg cac gtc att gga gag gat gcc gcc tgc atc gct Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala 350 355 360 365	1527
tac atc cgg ctc acg cag tac att gac ggg cag ggc cgg ccc cgc acc Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr 370 375 380	1575
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cag aac gtg cac ttc cac tgc tcg ggc gcg cct gtg gcc cc <sup>g</sup> ctg cag Gln Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln 400 405 410	1671
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 35 40 45  
 Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly Lys  
 50 55 60  
 Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val  
 65 70 75 80  
 Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln Gln  
 85 90 95  
 Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val  
 100 105 110  
 Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn Pro  
 115 120 125  
 Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val Cys  
 130 135 140  
 Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Glu  
 145 150 155 160  
 Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu  
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 Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr Thr  
 180 185 190  
 Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly Leu  
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 Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val Lys  
 210 215 220  
 Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro Lys  
 225 230 235 240  
 Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile His  
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 Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr Thr  
 260 265 270  
 Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile Ile Lys Thr  
 275 280 285  
 Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr  
 290 295 300

Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu  
305 310 315 320

Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn  
325 330 335

Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro  
340 345 350

His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg  
355 360 365

Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser  
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Phe Thr Asp Glu Tyr Gln Leu Tyr Glu Asp Ile Gly Lys Gly Ala Phe  
10 15 20 25

tct gtg gtc cga cgc tgt gtc aag ctc tgc acc ggc cat gag tat gca 147  
Ser Val Val Arg Arg Cys Val Lys Leu Cys Thr Gly His Glu Tyr Ala  
30 35 40

gcc aag atc atc aac acc aag aag ctg tca gcc aga gat cac cag aag 195  
Ala Lys Ile Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys  
45 50 55

ctg gag aga gag gct cgg atc tgc cgc ctt ctg aag cat tcc aac atc 243  
Leu Glu Arg Glu Ala Arg Ile Cys Arg Leu Leu Lys His Ser Asn Ile  
60 65 70

gtg cgt ctc cac gac agc atc tcc gag gag ggc ttc cac tac ctg gtc 291  
Val Arg Leu His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val  
75 80 85

ttc gat ctg gtc act ggt ggg gag ctc ttt gaa gac att gtg gcg aga 339  
Phe Asp Leu Val Thr Gly Gly Glu Leu Phe Glu Asp Ile Val Ala Arg

90	95	100	105	
gag tac tac agc gag gct gat gcc agt cac tgt atc cag cag atc ctg Glu Tyr Tyr Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu				387
110                    115                    120				
gag gcc gtt ctc cat tgt cac caa atg ggg gtc gtc cac aga gac ctc Glu Ala Val Leu His Cys His Gln Met Gly Val Val His Arg Asp Leu				435
125                    130                    135				
aag ccg gag aac ctg ctt ctg gcc agc aag tgc aaa ggg gct gca gtg Lys Pro Glu Asn Leu Leu Ala Ser Lys Cys Lys Gly Ala Ala Val				483
140                    145                    150				
aag ctg gca gac ttc ggc cta gct atc gag gtg cag ggg gac cag cag Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln				531
155                    160                    165				
gca tgg ttt ggt ttc gct ggc aca cca ggc tac ctg tcc cct gag gtc Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val				579
170                    175                    180                    185				
ctt cgc aaa gag gcg tac ggc aag ccc gtg gac atc tgg gca tgt ggg Leu Arg Lys Glu Ala Tyr Gly Lys Pro Val Asp Ile Trp Ala Cys Gly				627
190                    195                    200				
gtg atc ctg tac atc ctg ctc gtg ggc tac cca ccc ttc tgg gac gag Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu				675
205                    210                    215				
gac cag cac aag ctg tac cag cag atc aag gct ggt gcc tat gac ttc Asp Gln His Lys Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe				723
220                    225                    230				
ccg tcc cct gag tgg gac acc gtc act cct gaa gcc aaa aac ctc atc Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asn Leu Ile				771
235                    240                    245				
aac cag atg ctg acc atc aac cct gcc aag cgc atc aca gcc cat gag Asn Gln Met Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala His Glu				819
250                    255                    260                    265				
gcc ctg aag cac ccg tgg gtc tgc caa cgc tcc acg gta gca tcc atg Ala Leu Lys His Pro Trp Val Cys Gln Arg Ser Thr Val Ala Ser Met				867
270                    275                    280				
atg cac aga cag gag act gtg gag tgt ctg aaa aag ttc aat gcc agg Met His Arg Gln Glu Thr Val Glu Cys Leu Lys Lys Phe Asn Ala Arg				915
285                    290                    295				
aga aag ctc aag gga gcc atc ctc acc acc atg ctg gcc aca cgg aat Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn				963
300                    305                    310				
ttc tca gca gcc aag agt tta ctc aac aag aaa gca gat gga gtc aag Phe Ser Ala Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val Lys				1011
315                    320                    325				

ccc cat acg aat agc acc aaa aac agt gca gcc gcc acc agc ccc aaa		1059	
Pro His Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro Lys			
330	335	340	345
ggg acg ctt cct cct gcc gcc ctg gag tct tct gac agt gcc aat acc		1107	
Gly Thr Leu Pro Pro Ala Ala Leu Glu Ser Ser Asp Ser Ala Asn Thr			
350	355	360	
acc ata gag gat gaa gac gct aaa gcc cggt aag cag gag atc att aag		1155	
Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile Ile Lys			
365	370	375	
acc acg gag cag ctc atc gag gcc gtc aac aac ggt gac ttt gag gcc		1203	
Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala			
380	385	390	
tac gcg aaa atc tgt gac cca ggg ctg acc tcg ttt gag cct gaa gca		1251	
Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala			
395	400	405	
ctg ggc aac ctg gtt gaa ggg atg gac ttc cac aga ttc tac ttc gag		1299	
Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu			
410	415	420	425
aac ctg ctg gcc aag aac agc aag ccg atc cac acg acc atc ctg aac		1347	
Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn			
430	435	440	
cca cac gtg cac gtc att gga gag gat gcc gcc tgc atc gct tac atc		1395	
Pro His Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile			
445	450	455	
cgg ctc acg cag tac att gac ggg cag ggc cgg ccc cgc acc agc cag		1443	
Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln			
460	465	470	
tct gag gag acc cgc gtg tgg cac cgc cgc gac ggc aag tgg cag aac		1491	
Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn			
475	480	485	
gtg cac ttc cac tgc tcg ggc gcg cct gtg gcc ccg ctg cag		1533	
Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln			
490	495	500	
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Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys  
 35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile  
 50 55 60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile  
 65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly  
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Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp  
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Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His  
 115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
 130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
 145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
 165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
 180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
 195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
 210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
 225 230 235 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
 245 250 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val  
 260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val  
 275 280 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile  
 290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu  
 305                    310                    315                    320  
  
 Leu Asn Lys Lys Ala Asp Gly Val Lys Pro His Thr Asn Ser Thr Lys  
 325                    330                    335  
  
 Asn Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala  
 340                    345                    350  
  
 Leu Glu Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala  
 355                    360                    365  
  
 Lys Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu  
 370                    375                    380  
  
 Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro  
 385                    390                    395                    400  
  
 Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly  
 405                    410                    415  
  
 Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser  
 420                    425                    430  
  
 Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly  
 435                    440                    445  
  
 Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp  
 450                    455                    460  
  
 Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp  
 465                    470                    475                    480  
  
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 tac gag gat att ggc aag ggg gct ttc tct gtg gtc cga cgc tgt gtc      96  
 Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val  
 20                    25                    30

aag ctc tgc acc ggc cat gag tat gca gcc aag atc atc aac acc aag Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys 35                          40                          45	144
aag ctg tca gcc aga gat cac cag aag ctg gag aga gag gct cg <sup>g</sup> atc Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile 50                          55                          60	192
tgc cgc ctt ctg aag cat tcc aac atc gtg cgt ctc cac gac agc atc Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile 65                          70                          75                          80	240
tcc gag gag ggc ttc cac tac ctg gtc ttc gat ctg gtc act ggt ggg Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly 85                          90                          95	288
gag ctc ttt gaa gac att gtg gc <sup>g</sup> aga gag tac tac agc gag gct gat Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp 100                        105                        110	336
gcc agg gcc act cgc act aac cca cct gct gtt tgc cac agt cac tgt Ala Arg Ala Thr Arg Thr Asn Pro Pro Ala Val Cys His Ser His Cys 115                        120                        125	384
atc cag cag atc ctg gag gcc gtt ctc cat tgt cac caa atg ggg gtc Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln Met Gly Val 130                        135                        140	432
gtc cac aga gac ctc aag ccg gag aac ctg ctt ctg gcc agc aag tgc Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Ala Ser Lys Cys 145                        150                        155                        160	480
aaa ggg gct gca gtg aag ctg gca gac ttc ggc cta gct atc gag gtg Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val 165                        170                        175	528
cag ggg gac cag cag gca tgg ttt ggt ttc gct ggc aca cca ggc tac Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr 180                        185                        190	576
ctg tcc cct gag gtc ctt cgc aaa gag gc <sup>g</sup> tat ggc aag cct gtg gac Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly Lys Pro Val Asp 195                        200                        205	624
atc tgg gca tgt ggg gtg atc ctg tac atc ctg ctc gtg ggc tac cca Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Val Gly Tyr Pro 210                        215                        220	672
ccc ttc tgg gac gag gac cac aag ctg tac cag cag atc aag gct Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln Gln Ile Lys Ala 225                        230                        235                        240	720
ggt gcc tat gac ttc ccg tcc cct gag tgg gac acc gtc act cct gaa Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu 245                        250                        255	768
gcc aaa aac ctc atc aac cag atg ctg acc atc aac cct gcc aag cgc	816

Ala Lys Asn Leu Ile Asn Gln Met	Leu Thr Ile Asn Pro Ala Lys Arg		
260	265	270	
atc aca gcc cat gag gcc ctg aag cac ccg tgg gtc tgc caa cgc tcc	Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val Cys Gln Arg Ser	864	
275	280	285	
acg gta gca tcc atg atg cac aga cag gag act gtg gag tgt ctg aaa	Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Glu Cys Leu Lys	912	
290	295	300	
aag ttc aat gcc agg aga aag ctc aag gga gcc atc ctc acc acc atg	Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met	960	
305	310	315	320
ctg gcc aca cgg aat ttc tca gcc aag agt tta ctc aac aag aaa gca	Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu Asn Lys Lys Ala	1008	
325	330	335	
gat gga gtc aag ccc cag acg aat agc acc aaa aac agt gca gcc gcc	Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala	1056	
340	345	350	
acc agc ccc aaa ggg acg ctt cct cct gcc gcc ctg gag cct caa acc	Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr	1104	
355	360	365	
acc gtc atc cat aac cca gtg gac ggg att aag gag tct tct gac agt	Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser	1152	
370	375	380	
gcc aat acc acc ata gag gat gaa gac gct aaa gcc ccc agg gtc ccc	Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Pro Arg Val Pro	1200	
385	390	395	400
gac atc ctg agc tca gtg agg agg ggc tcg gga gcc cca gaa gcc gag	Asp Ile Leu Ser Ser Val Arg Arg Gly Ser Gly Ala Pro Glu Ala Glu	1248	
405	410	415	
ggg ccc ctg ccc tgc cca tct ccg gct ccc ttt agc ccc ctg cca gcc	Gly Pro Leu Pro Cys Pro Ser Pro Ala Pro Phe Ser Pro Leu Pro Ala	1296	
420	425	430	
cca tcc ccc agg atc tct gac atc ctg aac tct gtg aga agg ggt tca	Pro Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser	1344	
435	440	445	
gga acc cca gaa gcc gag ggc ccc ctc tca gcg ggg ccc ccg ccc tgc	Gly Thr Pro Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys	1392	
450	455	460	
ctg tct ccg gct ctc cta ggc ccc ctg tcc tcc ccg tcc ccc agg atc	Leu Ser Pro Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile	1440	
465	470	475	480
tct gac atc ctg aac tct gtg agg agg ggc tca ggg acc cca gaa gcc	Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala	1488	

485	490	495	
gag ggc ccc tcg cca gtg ggg ccc ccg ccc tgc cca tct ccg act atc Glu Gly Pro Ser Pro Val Gly Pro Pro Pro Cys Pro Ser Pro Thr Ile 500	505	510	1536
cct ggc ccc ctg ccc acc cca tgg atg gat gac atc cca ggg ctg ctg Pro Gly Pro Leu Pro Thr Pro Trp Met Asp Asp Ile Pro Gly Leu Leu 515	520	525	1584
cca ccc cca cct gtg ggg aga cac cag act ggg ggt ggt gtg gag ata Pro Pro Pro Val Gly Arg His Gln Thr Gly Gly Val Glu Ile 530	535	540	1632
ctc tta gag aag agg ctg ctg ggc cac ggg ctc ggc atg gca ggg cag Leu Leu Glu Lys Arg Leu Leu Gly His Gly Leu Gly Met Ala Gly Gln 545	550	555	1680
tgg cta gcc cg <sup>g</sup> aag cag gag atc att aag acc acg gag cag ctc atc Trp Leu Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile 565	570	575	1728
gag gcc gtc aac aac ggt gac ttt gag gcc tac gcg aaa atc tgt gac Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp 580	585	590	1776
cca ggg ctg acc tcg ttt gag cct gaa gca ctg ggc aac ctg gtt gaa Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu 595	600	605	1824
ggg atg gac ttc cac aga ttc tac ttc gag aac ctg ctg gcc aag aac Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn 610	615	620	1872
agc aag ccg atc cac acg acc atc ctg aac cca cac gtg cac gtc att Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile 625	630	635	1920
gga gag gat gcc gcc tgc atc gct tac atc cgg ctc acg cag tac att Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile 645	650	655	1968
gac ggg cag ggc cg <sup>g</sup> ccc cgc acc agc cag tct gag gag acc cgc gtg Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val 660	665	670	2016
tgg cac cgc cgc gac ggc aag tgg cag aat gtg cac ttc cac tgc tcg Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Cys Ser 675	680	685	2064
ggc gcg cct gtg gcc ccg ctg cag tgaagagactg cgccctggtt tcgccggaca Gly Ala Pro Val Ala Pro Leu Gln 690	695		2118
gagtttgtt ttggagcccg actgcctcg ggcacacggc ctgcctgtcg catgtttgtg 2178			
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gttaaaaaaaaaaa aaa 2251  
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 Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val  
     20                                 25                                30  
 Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys  
     35                                 40                                45  
 Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile  
     50                                 55                                60  
 Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile  
     65                                 70                                75                        80  
 Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly  
     85                                 90                                95  
 Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp  
     100                             105                                110  
 Ala Arg Ala Thr Arg Thr Asn Pro Pro Ala Val Cys His Ser His Cys  
     115                             120                                125  
 Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln Met Gly Val  
     130                             135                                140  
 Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala Ser Lys Cys  
     145                             150                                155                        160  
 Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val  
     165                             170                                175  
 Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr  
     180                             185                                190  
 Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly Lys Pro Val Asp  
     195                             200                                205  
 Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro  
     210                             215                                220  
 Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln Gln Ile Lys Ala  
     225                             230                                235                        240  
 Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu  
     245                             250                                255

Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn Pro Ala Lys Arg  
                  260                       265                     270  
  
 Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val Cys Gln Arg Ser  
                  275                       280                     285  
  
 Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Glu Cys Leu Lys  
                  290                       295                     300  
  
 Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met  
                  305                       310                     315                     320  
  
 Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu Asn Lys Lys Ala  
                  325                       330                     335  
  
 Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala  
                  340                       345                     350  
  
 Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr  
                  355                       360                     365  
  
 Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser  
                  370                       375                     380  
  
 Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Pro Arg Val Pro  
                  385                       390                     395                     400  
  
 Asp Ile Leu Ser Ser Val Arg Arg Gly Ser Gly Ala Pro Glu Ala Glu  
                  405                       410                     415  
  
 Gly Pro Leu Pro Cys Pro Ser Pro Ala Pro Phe Ser Pro Leu Pro Ala  
                  420                       425                     430  
  
 Pro Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser  
                  435                       440                     445  
  
 Gly Thr Pro Glu Ala Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys  
                  450                       455                     460  
  
 Leu Ser Pro Ala Leu Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile  
                  465                       470                     475                     480  
  
 Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala  
                  485                       490                     495  
  
 Glu Gly Pro Ser Pro Val Gly Pro Pro Pro Cys Pro Ser Pro Thr Ile  
                  500                       505                     510  
  
 Pro Gly Pro Leu Pro Thr Pro Trp Met Asp Asp Ile Pro Gly Leu Leu  
                  515                       520                     525  
  
 Pro Pro Pro Pro Val Gly Arg His Gln Thr Gly Gly Val Glu Ile  
                  530                       535                     540  
  
 Leu Leu Glu Lys Arg Leu Leu Gly His Gly Leu Gly Met Ala Gly Gln  
                  545                       550                     555                     560

Trp Leu Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile  
565 570 575

Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp  
580 585 590

Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu  
595 600 605

Gly Met Asp Phe His Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn  
610 615 620

Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His Val His Val Ile  
625 630 635 640

Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile  
645 650 655

Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val  
660 665 670

Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His Phe His Cys Ser  
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Gly Ala Pro Val Ala Pro Leu Gln  
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Met Ala Thr Thr Val Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln  
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cta tac gag gat att ggc aag ggg gct ttc tct gtg gtc cga cgc tgt 96  
Leu Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys  
20 25 30

gtc aag ctc tgc acc ggc cat gag tat gca gcc aag atc atc aac acc 144  
Val Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr  
35 40 45

aag aag ctg tca gcc aga gat cac cag aag ctg gag aga gag gct cgg 192  
Lys Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg  
50 55 60

atc tgc cgc ctt ctg aag cat tcc aac atc gtg cgt ctc cac gac agc 240  
Ile Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser  
65 70 75

atc tcc gag gag ggc ttc cac tac ctg gtc ttc gat ctg gtc act ggt Ile Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly	80	85	90	95	288
ggg gag ctc ttt gaa gac att gtg gcg aga gag tac tac agc gag gct Gly Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala	100	105		110	336
gat gcc agt cac tgt atc cag cag atc ctg gag gcc gtt ctc cat tgt Asp Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys	115	120		125	384
cac caa atg ggg gtc gtc cac aga gac ctc aag ccg gag aac ctg ctt His Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu	130	135		140	432
ctg gcc agc aag tgc aaa ggg gct gca gtg aag ctg gca gac ttc ggc Leu Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly	145	150		155	480
cta gct atc gag gtg cag ggg gac cag cag gca tgg ttt ggt ttc gct Leu Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala	160	165	170	175	528
ggc aca cca ggc tac ctg tcc cct gag gtc ctt cgc aaa gag gcg tat Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr	180	185		190	576
ggc aag cct gtg gac atc tgg gca tgt ggg gtg atc ctg tac atc ctg Gly Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu	195	200		205	624
ctc gtg ggc tac cca ccc ttc tgg gac gag gac cag cac aag ctg tac Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr	210	215		220	672
cag cag atc aag gct ggt gcc tat gac ttc ccg tcc cct gag tgg gac Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp	225	230	235		720
acc gtc act cct gaa gcc aaa aac ctc atc aac cag atg ctg acc atc Thr Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile	240	245	250		768
aac cct gcc aag cgc atc aca gcc cat gag gcc ctg aag cac ccg tgg Asn Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp	260	265		270	816
gtc tgc caa cgc tcc acg gta gca tcc atg atg cac aga cag gag act Val Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr	275	280		285	864
gtg gag tgt ctg aaa aag ttc aat gcc agg aga aag ctc aag gga gcc Val Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala	290	295	300		912
atc ctc acc acc atg ctg gcc aca cgg aat ttc tca gtg ggc aga cag					960

Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln			
305	310	315	
acc acc gct ccg gcc aca atg tcc acc gcg gcc tcc ggc acc acc atg			1008
Thr Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met			
320	325	330	335
ggg ctg gtg gaa caa gcc aag agt tta ctc aac aag aaa gca gat gga			1056
Gly Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly			
340	345	350	
gtc aag ccc cag acg aat agc acc aaa aac agt gca gcc gcc acc agc			1104
Val Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Thr Ser			
355	360	365	
ccc aaa ggg acg ctt cct cct gcc gcc ctg gag cct caa acc acc gtc			1152
Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val			
370	375	380	
atc cat aac cca gtg gac ggg att aag gag tct tct gac agt gcc aat			1200
Ile His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn			
385	390	395	
acc acc ata gag gat gaa gac gct aaa gcc cgg aag cag gag atc att			1248
Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile Ile			
400	405	410	415
aag acc acg gag cag ctc atc gag gcc gtc aac aac ggt gac ttt gag			1296
Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu			
420	425	430	
gcc tac gcg aaa atc tgt gac cca ggg ctg acc tcg ttt gag cct gaa			1344
Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu			
435	440	445	
gca ctg ggc aac ctg gtt gaa ggg atg gac ttc cac aga ttc tac ttc			1392
Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe			
450	455	460	
gag aac ctg ctg gcc aag aac agc aag cca atc cac acg acc atc ctg			1440
Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu			
465	470	475	
aac cca cac gtg cac gtc att gga gag gat gtc gcc tgc acc gct tac			1488
Asn Pro His Val His Val Ile Gly Glu Asp Val Ala Cys Thr Ala Tyr			
480	485	490	495
atc cgg ctc acg cag tac att gac ggg cag ggc cgg ccc cgc acc agc			1536
Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser			
500	505	510	
cag tct gag gag acc cgc gtg tgg cac cgc cgc gac ggc aag tgg cag			1584
Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln			
515	520	525	
aac gtg cac ttc cac tgc tcg ggc gcg cct gtg gcc ccg ctg cag			1629
Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln			

530

535

540

tgaagagctg cggccctgggtt tcgcccggaca gagttgggtgt ttggagcccg actgccctcg 1689  
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Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val  
20 25 30

Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys  
35 40 45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile  
50 55 60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile  
65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly  
85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp  
100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His  
115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
225 230 235 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
                  245                     250                     255  
  
 Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val  
                  260                     265                     270  
  
 Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val  
                  275                     280                     285  
  
 Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile  
                  290                     295                     300  
  
 Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Val Gly Arg Gln Thr  
                  305                     310                     315                     320  
  
 Thr Ala Pro Ala Thr Met Ser Thr Ala Ala Ser Gly Thr Thr Met Gly  
                  325                     330                     335  
  
 Leu Val Glu Gln Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val  
                  340                     345                     350  
  
 Lys Pro Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Thr Ser Pro  
                  355                     360                     365  
  
 Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile  
                  370                     375                     380  
  
 His Asn Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr  
                  385                     390                     395                     400  
  
 Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys Gln Glu Ile Ile Lys  
                  405                     410                     415  
  
 Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala  
                  420                     425                     430  
  
 Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala  
                  435                     440                     445  
  
 Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe Glu  
                  450                     455                     460  
  
 Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn  
                  465                     470                     475                     480  
  
 Pro His Val His Val Ile Gly Glu Asp Val Ala Cys Thr Ala Tyr Ile  
                  485                     490                     495  
  
 Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln  
                  500                     505                     510  
  
 Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn  
                  515                     520                     525  
  
 Val His Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln  
                  530                     535                     540

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tac gag gat att ggc aag ggg gct ttc tct gtg gtc cga cgc tgt gtc	97		
Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val			
20	25	30	
aag ctc tgc acc ggc cat gag tat gca gcc aag atc atc aac acc aag	145		
Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys			
35	40	45	
aag ctg tca gcc aga gat cac cag aag ctg gag aga gag gct cgg atc	193		
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile			
50	55	60	
tgc cgc ctt ctg aag cat tcc aac atc gtg cgt ctc cac gac agc atc	241		
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile			
65	70	75	80
tcc gag gag ggc ttc cac tac ctg gtc ttc gat ctg gtc act ggt ggg	289		
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly			
85	90	95	
gag ctc ttt gaa gac att gtg gcg aga gag tac tac agc gag gct gat	337		
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp			
100	105	110	
gcc agg gcc act cgc act aac cca cct gct gtt tgc cac agt cac tgt	385		
Ala Arg Ala Thr Arg Thr Asn Pro Pro Ala Val Cys His Ser His Cys			
115	120	125	
atc cag cag atc ctg gag gcc gtt ctc cat tgt cac caa atg ggg gtc	433		
Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln Met Gly Val			
130	135	140	
gtc cac aga gac ctc aag ccg gag aac ctg ctt ctg gcc agc aag tgc	481		
Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Ala Ser Lys Cys			
145	150	155	160
aaa ggg gct gca gtg aag ctg gca gac ttc ggc cta gct atc gag gtg	529		
Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val			
165	170	175	
cag ggg gac cag cag gca tgg ttt ggt ttc gct ggc aca cca ggc tac	577		
Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr			
180	185	190	

ctg tcc cct gag gtc ctt cgc aaa gag gcg tac ggc aag ccc gtg gac		625
Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly Lys Pro Val Asp		
195	200	205
atc tgg gca tgt ggg gtg atc ctg tac atc ctg ctc gtg ggc tac cca		673
Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro		
210	215	220
ccc ttc tgg gac gag gac cac aag ctg tac cag cag atc aag gct		721
Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln Gln Ile Lys Ala		
225	230	235
240		
ggt gcc tat gac ttc ccg tcc cct gag tgg gac acc gtc act cct gaa		769
Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu		
245	250	255
gcc aaa aac ctc atc aac cag atg ctg acc atc aac cct gcc aag cgc		817
Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn Pro Ala Lys Arg		
260	265	270
atc aca gcc cat gag gcc ctg aag cac ccg tgg gtc tgc caa cgc tcc		865
Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val Cys Gln Arg Ser		
275	280	285
acg gta gca tcc atg atg cac aga cag gag act gtg gag tgt ctg aaa		913
Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Glu Cys Leu Lys		
290	295	300
aag ttc aat gcc agg aga aag ctc aag gga gcc atc ctc acc acc atg		961
Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met		
305	310	315
320		
ctg gcc aca cgg aat ttc tca gca gcc aag agt tta ctc aac aag aaa		1009
Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu Leu Asn Lys Lys		
325	330	335
gca gat gga gtc aag ccc cat acg aat agc acc aaa aac agt gca gcc		1057
Ala Asp Gly Val Lys Pro His Thr Asn Ser Thr Lys Asn Ser Ala Ala		
340	345	350
gcc acc agc ccc aaa ggg acg ctt cct cct gcc gcc ctg gag tct tct		1105
Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Ser Ser		
355	360	365
gac agt gcc aat acc acc ata gag gat gaa gac gct aaa gcc cggt aag		1153
Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys		
370	375	380
cag gag atc att aag acc acg gag cag ctc atc gag gcc gtc aac aac		1201
Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn		
385	390	395
400		
ggt gac ttt gag gcc tac gcg aaa atc tgt gac cca ggg ctg acc tcg		1249
Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser		
405	410	415

ttt gag cct gaa gca ctg ggc aac ctg gtt gaa ggg atg gac ttc cac Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His	420	425	430	1297
aga ttc tac ttc gag aac ctg ctg gcc aag aac agc aag ccg atc cac Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His	435	440	445	1345
acg acc atc ctg aac cca cac gtg cac gtc att gga gag gat gcc gcc Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala	450	455	460	1393
tgc atc gct tac atc cgg ctc acg cag tac att gac ggg cag ggc cg Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg	465	470	475	480
ccc cgc acc agc cag tct gag gag acc cgc gtg tgg cac cgc cgc gac Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp	485	490	495	1489
ggc aag tgg cag aac gtg cac ttc cac tgc tcg ggc gcg cct gtg gcc Gly Lys Trp Gln Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala	500	505	510	1537
ccg ctg cag tgaagagctg cgccctgggt tcgccccaca gagttggtgt Pro Leu Gln	515			1586
ttggagcccg actgccctcg ggcacacggc ctgcctgtcg catgtttgtg tctgcctcgt				1646
tccctccct ggtgcctgtg tctgcagaaa aacaagcccg act				1689
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Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val	20	25	30	
Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys	35	40	45	
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile	50	55	60	
Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile	65	70	75	80
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly	85	90	95	
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp				

100	105	110
Ala Arg Ala Thr Arg Thr Asn Pro Pro Ala Val Cys His Ser His Cys		
115	120	125
Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln Met Gly Val		
130	135	140
Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Ala Ser Lys Cys		
145	150	155
Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val		
165	170	175
Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr		
180	185	190
Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly Lys Pro Val Asp		
195	200	205
Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro		
210	215	220
Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln Gln Ile Lys Ala		
225	230	235
Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu		
245	250	255
Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn Pro Ala Lys Arg		
260	265	270
Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val Cys Gln Arg Ser		
275	280	285
Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Glu Cys Leu Lys		
290	295	300
Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met		
305	310	315
Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu Leu Asn Lys Lys		
325	330	335
Ala Asp Gly Val Lys Pro His Thr Asn Ser Thr Lys Asn Ser Ala Ala		
340	345	350
Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu Glu Ser Ser		
355	360	365
Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala Arg Lys		
370	375	380
Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn		
385	390	395
Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser		

405	410	415
Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His		
420	425	430
Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His		
435	440	445
Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala		
450	455	460
Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg		
465	470	475
Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp		
485	490	495
Gly Lys Trp Gln Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala		
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Pro Leu Gln		
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ttc acc gac gag tac cag ctc tac gag gat att ggc aag ggg gct ttc		
Phe Thr Asp Glu Tyr Gln Leu Tyr Glu Asp Ile Gly Lys Gly Ala Phe		
10	15	20
25		
tct gtg gtc cga cgc tgt gtc aag ctc tgc acc ggc cat gag tat gca		
Ser Val Val Arg Arg Cys Val Lys Leu Cys Thr Gly His Glu Tyr Ala		
30	35	40
gcc aag atc atc aac acc aag ctg tca gcc aga gat cac cag aag		
Ala Lys Ile Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys		
45	50	55
ctg gag aga gag gct cgg atc tgc cgc ctt ctg aag cat tcc aac atc		
Leu Glu Arg Glu Ala Arg Ile Cys Arg Leu Leu Lys His Ser Asn Ile		
60	65	70
gtg cgt ctc cac gac agc atc tcc gag gag ggc ttc cac tac ctg gtc		
Val Arg Leu His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val		
75	80	85

ttc gat ctg gtc act ggt ggg gag ctc ttt gaa gac att gtg gcg aga Phe Asp Leu Val Thr Gly Gly Glu Leu Phe Glu Asp Ile Val Ala Arg	90 95 100 105	339
gag tac tac agc gag gct gat gcc agt cac tgt atc cag cag atc ctg Glu Tyr Tyr Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu	110 115 120	387
gag gcc gtt ctc cat tgt cac caa atg ggg gtc gtc cac aga gac ctc Glu Ala Val Leu His Cys His Gln Met Gly Val Val His Arg Asp Leu	125 130 135	435
aag ccg gag aac ctg ctt ctg gcc agc aag tgc aaa ggg gct gca gtg Lys Pro Glu Asn Leu Leu Ala Ser Lys Cys Lys Gly Ala Ala Val	140 145 150	483
aag ctg gca gac ttc ggc cta gct atc gag gtg cag ggg gac cag cag Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln	155 160 165	531
gca tgg ttt ggt ttc gct ggc aca cca ggc tac ctg tcc cct gag gtc Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val	170 175 180 185	579
ctt cgc aaa gag gcg tat ggc aag cct gtg gac atc tgg gca tgt ggg Leu Arg Lys Glu Ala Tyr Gly Lys Pro Val Asp Ile Trp Ala Cys Gly	190 195 200	627
gtg atc ctg tac atc ctg ctc gtg ggc tac cca ccc ttc tgg gac gag Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu	205 210 215	675
gac cag cac aag ctg tac cag cag atc aag gct ggt gcc tat gac ttc Asp Gln His Lys Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe	220 225 230	723
ccg tcc cct gag tgg gac acc gtc act cct gaa gcc aaa aac ctc atc Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asn Leu Ile	235 240 245	771
aac cag atg ctg acc atc aac cct gcc aag cgc atc aca gcc cat gag Asn Gln Met Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala His Glu	250 255 260 265	819
gcc ctg aag cac ccg tgg gtc tgc caa cgc tcc acg gta gca tcc atg Ala Leu Lys His Pro Trp Val Cys Gln Arg Ser Thr Val Ala Ser Met	270 275 280	867
atg cac aga cag gag act gtg gag tgt ctg aaa aag ttc aat gcc agg Met His Arg Gln Glu Thr Val Glu Cys Leu Lys Lys Phe Asn Ala Arg	285 290 295	915
aga aag ctc aag gga gcc atc ctc acc acc atg ctg gcc aca cgg aat Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn	300 305 310	963
ttc tca gcc aag agt tta ctc aac aag aaa gca gat gga gtc aag ccc		1011

Phe Ser Ala Lys Ser Leu Leu Asn Lys Lys Ala Asp Gly Val Lys Pro			
315	320	325	
cag acg aat agc acc aaa aac agt gca gcc gcc acc acc ccc aaa ggg			1059
Gln Thr Asn Ser Thr Lys Asn Ser Ala Ala Ala Thr Ser Pro Lys Gly			
330	335	340	345
acg ctt cct cct gcc gcc ctg gag cct caa acc acc gtc atc cat aac			1107
Thr Leu Pro Pro Ala Ala Leu Glu Pro Gln Thr Thr Val Ile His Asn			
350	355	360	
cca gtg gac ggg att aag gag tct tct gac agt gcc aat acc acc ata			1155
Pro Val Asp Gly Ile Lys Glu Ser Ser Asp Ser Ala Asn Thr Thr Ile			
365	370	375	
gag gat gaa gac gct aaa gcc ccc agg gtc ccc gac atc ctg agc tca			1203
Glu Asp Glu Asp Ala Lys Ala Pro Arg Val Pro Asp Ile Leu Ser Ser			
380	385	390	
gtg agg agg ggc tcg gga gcc cca gaa gcc gag ggg ccc ctg ccc tgc			1251
Val Arg Arg Gly Ser Gly Ala Pro Glu Ala Glu Gly Pro Leu Pro Cys			
395	400	405	
cca tct ccg gct ccc ttt agc ccc ctg cca gcc cca tcc ccc agg atc			1299
Pro Ser Pro Ala Pro Phe Ser Pro Leu Pro Ala Pro Ser Pro Arg Ile			
410	415	420	425
tct gac atc ctg aac tct gtg aga agg ggt tca gga acc cca gaa gcc			1347
Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala			
430	435	440	
gag ggc ccc ctc tca gcg ggg ccc ccg ccc tgc ctg tct ccg gct ctc			1395
Glu Gly Pro Leu Ser Ala Gly Pro Pro Pro Cys Leu Ser Pro Ala Leu			
445	450	455	
cta ggc ccc ctg tcc tcc ccg tcc ccc agg atc tct gac atc ctg aac			1443
Leu Gly Pro Leu Ser Ser Pro Ser Pro Arg Ile Ser Asp Ile Leu Asn			
460	465	470	
tct gtg agg agg ggc tca ggg acc cca gaa gcc gag ggc ccc tcg cca			1491
Ser Val Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro Ser Pro			
475	480	485	
gtg ggg ccc ccg ccc tgc cca tct ccg act atc cct ggc ccc ctg ccc			1539
Val Gly Pro Pro Pro Cys Pro Ser Pro Thr Ile Pro Gly Pro Leu Pro			
490	495	500	505
acc cca tgg atg gat gac atc cca ggg ctg ctg cca ccc cca cct gtg			1587
Thr Pro Trp Met Asp Asp Ile Pro Gly Leu Leu Pro Pro Pro Val			
510	515	520	
ggg aga cac cag act ggg ggt ggt gtg gag ata ctc tta gag aag agg			1635
Gly Arg His Gln Thr Gly Gly Val Glu Ile Leu Leu Glu Lys Arg			
525	530	535	
ctg ctg ggc cac ggg ctc ggc atg gca ggg cag tgg cta gcc cg aag			1683
Leu Leu Gly His Gly Leu Gly Met Ala Gly Gln Trp Leu Ala Arg Lys			

540	545	550	
cag gag atc att aag acc acg gag cag ctc atc gag gcc gtc aac aac Gln Glu Ile Ile Lys Thr Thr Glu Gln Leu Ile Glu Ala Val Asn Asn 555	560	565	1731
ggt gac ttt gag gcc tac gcg aaa atc tgt gac cca ggg ctg acc tcg Gly Asp Phe Glu Ala Tyr Ala Lys Ile Cys Asp Pro Gly Leu Thr Ser 570	575	580	1779
ttt gag cct gaa gca ctg ggc aac ctg gtt gaa ggg ata gac ttc cac Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Ile Asp Phe His 590	595	600	1827
aga ttc tac ttc gag aac ctg ctg gcc aag aac agc aag ccg atc cac Arg Phe Tyr Phe Glu Asn Leu Leu Ala Lys Asn Ser Lys Pro Ile His 605	610	615	1875
acg acc atc ctg aac cca cac gtg cac gtc att gga gag gat gcc gcc Thr Thr Ile Leu Asn Pro His Val His Val Ile Gly Glu Asp Ala Ala 620	625	630	1923
tgc atc gct tac atc cgg ctc acg cag tac att gac ggg cag ggc cgg Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Ile Asp Gly Gln Gly Arg 635	640	645	1971
ccc cgc acc agc cag tct gag gag acc cgc gtg tgg cac cgc cgc gac Pro Arg Thr Ser Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp 650	655	660	2019
ggc aag tgg cag aat gtg cac ttc cac tgc tcg ggc gcg cct gtg gcc Gly Lys Trp Gln Asn Val His Phe His Cys Ser Gly Ala Pro Val Ala 670	675	680	2067
ccg ctg cag tgaagagctg cgccctggtt tcgccccaca gagttggtgt Pro Leu Gln			2116
ttggagcccg actgccctcg ggcacacggc ctgcctgtcg catgtttgtg tctgcctcgt tccctccct ggtgcctgtg tctgcagaaa aacaagacca gatgtgattt gttaaaaaaa aaa			2176 2236 2239
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Tyr Glu Asp Ile Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Val 20 25 30			
Lys Leu Cys Thr Gly His Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys			

35

40

45

Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile  
 50 55 60

Cys Arg Leu Leu Lys His Ser Asn Ile Val Arg Leu His Asp Ser Ile  
 65 70 75 80

Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly  
 85 90 95

Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp  
 100 105 110

Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His  
 115 120 125

Gln Met Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
 130 135 140

Ala Ser Lys Cys Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
 145 150 155 160

Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
 165 170 175

Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Glu Ala Tyr Gly  
 180 185 190

Lys Pro Val Asp Ile Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
 195 200 205

Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Lys Leu Tyr Gln  
 210 215 220

Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
 225 230 235 240

Val Thr Pro Glu Ala Lys Asn Leu Ile Asn Gln Met Leu Thr Ile Asn  
 245 250 255

Pro Ala Lys Arg Ile Thr Ala His Glu Ala Leu Lys His Pro Trp Val  
 260 265 270

Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val  
 275 280 285

Glu Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile  
 290 295 300

Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Lys Ser Leu Leu  
 305 310 315 320

Asn Lys Lys Ala Asp Gly Val Lys Pro Gln Thr Asn Ser Thr Lys Asn  
 325 330 335

Ser Ala Ala Ala Thr Ser Pro Lys Gly Thr Leu Pro Pro Ala Ala Leu

340	345	350
Glu Pro Gln Thr Thr Val Ile His Asn Pro Val Asp Gly Ile Lys Glu		
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Ser Ser Asp Ser Ala Asn Thr Thr Ile Glu Asp Glu Asp Ala Lys Ala		
370	375	380
Pro Arg Val Pro Asp Ile Leu Ser Ser Val Arg Arg Gly Ser Gly Ala		
385	390	395
Pro Glu Ala Glu Gly Pro Leu Pro Cys Pro Ser Pro Ala Pro Phe Ser		
405	410	415
Pro Leu Pro Ala Pro Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val		
420	425	430
Arg Arg Gly Ser Gly Thr Pro Glu Ala Glu Gly Pro Leu Ser Ala Gly		
435	440	445
Pro Pro Pro Cys Leu Ser Pro Ala Leu Leu Gly Pro Leu Ser Ser Pro		
450	455	460
Ser Pro Arg Ile Ser Asp Ile Leu Asn Ser Val Arg Arg Gly Ser Gly		
465	470	475
Thr Pro Glu Ala Glu Gly Pro Ser Pro Val Gly Pro Pro Pro Cys Pro		
485	490	495
Ser Pro Thr Ile Pro Gly Pro Leu Pro Thr Pro Trp Met Asp Asp Ile		
500	505	510
Pro Gly Leu Leu Pro Pro Pro Val Gly Arg His Gln Thr Gly Gly		
515	520	525
Gly Val Glu Ile Leu Leu Glu Lys Arg Leu Leu Gly His Gly Leu Gly		
530	535	540
Met Ala Gly Gln Trp Leu Ala Arg Lys Gln Glu Ile Ile Lys Thr Thr		
545	550	555
560		
Glu Gln Leu Ile Glu Ala Val Asn Asn Gly Asp Phe Glu Ala Tyr Ala		
565	570	575
Lys Ile Cys Asp Pro Gly Leu Thr Ser Phe Glu Pro Glu Ala Leu Gly		
580	585	590
Asn Leu Val Glu Gly Ile Asp Phe His Arg Phe Tyr Phe Glu Asn Leu		
595	600	605
Leu Ala Lys Asn Ser Lys Pro Ile His Thr Thr Ile Leu Asn Pro His		
610	615	620
Val His Val Ile Gly Glu Asp Ala Ala Cys Ile Ala Tyr Ile Arg Leu		
625	630	635
640		
Thr Gln Tyr Ile Asp Gly Gln Gly Arg Pro Arg Thr Ser Gln Ser Glu		

645	650	655
Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln Asn Val His		
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Phe His Cys Ser Gly Ala Pro Val Ala Pro Leu Gln		
675	680	
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gagaggcggg gggggTCCCT ggcctggcg gagaggctga gctgagtgcg cgtgagaaag	180	
agggctgcac cgctgctcg cgccggactct gccagccccca gtttcagccc cggctcaggt	240	
cggccgcagcc cgggagcctc cccgcttgcg ccccaaggca cgccggcac agcc atg	297	
		Met
		1
aac acc aac gat gcc aag gag tat ctg gcc cgg agg gaa atc cct cag		345
Asn Thr Asn Asp Ala Lys Glu Tyr Leu Ala Arg Arg Glu Ile Pro Gln		
5	10	15
ctt ttt gag agc ctt ttg aat gga ctg atg tgt tct aag ccc gaa gat		393
Leu Phe Glu Ser Leu Leu Asn Gly Leu Met Cys Ser Lys Pro Glu Asp		
20	25	30
cca gta gaa tac ttg gaa agt tgt tta caa aaa gta aag gaa ctg ggt		441
Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys Val Lys Glu Leu Gly		
35	40	45
ggc tgt gac aag gtg aaa tgg gat aca ttt gta agc cag gaa aag aag		489
Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val Ser Gln Glu Lys Lys		
50	55	60
65		
acc tta cct cca cta aat gga gga cag tca cgg aga tcc ttt cta aga		537
Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser Arg Arg Ser Phe Leu Arg		
70	75	80
aat gta atg cct gaa aac tca aac ttt cca tat cgg cgg tat gac cgg		585
Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr Arg Arg Tyr Asp Arg		
85	90	95
ctc cct cca atc cat caa ttc tcc ata gaa agt gac acg gat ctc tct		633
Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser Asp Thr Asp Leu Ser		
100	105	110

gag act gca gag ttg att gag gag tat gag gtt ttt gat cct acc aga Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr Arg 115                   120                   125	681
cct cga cca aaa atc att ctt gtt ata ggt ggt cca gga agt gga aag Pro Arg Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly Lys 130                   135                   140                   145	729
ggt act cag agt ttg aaa att gca gaa cga tat gga ttc caa tac att Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr Ile 150                   155                   160	777
tct gtg gga gaa tta tta aga aag aag atc cac agt acc agc agc aat Ser Val Gly Glu Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser Asn 165                   170                   175	825
agg aaa tgg agt ctt att gcc aag ata att aca act gga gaa ttg gcc Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu Ala 180                   185                   190	873
cca cag gaa aca aca att aca gag ata aaa caa aaa ttg atg caa ata Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln Ile 195                   200                   205	921
cct gat gaa gag ggc att gtt att gat gga ttt cca aga gat gtt gcc Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val Ala 210                   215                   220                   225	969
cag gct cta tct ttt gag gac caa atc tgt acc ccc gat ttt gtg gta Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Phe Val Val 230                   235                   240	1017
ttc ctg gct tgt gct aat cag aga ctc aaa gaa aga tta ctg aag cgt Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys Arg 245                   250                   255	1065
gca gaa cag cag ggc cga cca gac gac aat gta aaa gct acc caa agg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln Arg 260                   265                   270	1113
aga cta atg aac ttc aag cag aat gct gct cca ttg gtt aaa tac ttc Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr Phe 275                   280                   285	1161
cag gaa aag ggg ctc atc atg aca ttt gat gcc gac cgc gat gag gat Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu Asp 290                   295                   300                   305	1209
gag gtg ttc tat gac atc agc atg gca gtt gac aac aag tta ttt cca Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe Pro 310                   315                   320	1257
aac aaa gag gct gca gca ggt tca agt gac ctt gat cct tcg atg ata Asn Lys Glu Ala Ala Ala Gly Ser Ser Asp Leu Asp Pro Ser Met Ile 325                   330                   335	1305

ttg gac act gga gag atc att gat aca gga tct gat tat gaa gat cag Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp Gln 340 345 350	1353
ggt gat gac cag tta aat gta ttt gga gag gac act atg gga ggt ttc Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp Thr Met Gly Gly Phe 355 360 365	1401
atg gaa gat ttg aga aag tgt aaa att att ttc ata att ggt ggt cct Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe Ile Ile Gly Gly Pro 370 375 380 385	1449
ggc tct ggc aaa ggc aca cag tgt gaa aag ctg gtg gaa aaa tat gga Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr Gly 390 395 400	1497
ttt aca cat ctc tca act ggc gag ctc ctg cgt gag gaa ctg gca tca Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala Ser 405 410 415	1545
gaa tct gaa aga agc aaa ttg atc aga gac att atg gaa cgt gga gac Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile Met Glu Arg Gly Asp 420 425 430	1593
ctg gtg ccc tca ggc atc gtt ttg gag ctc ctg aag gag gcc atg gtg Leu Val Pro Ser Gly Ile Val Leu Glu Leu Lys Glu Ala Met Val 435 440 445	1641
gcc agc ctc ggg gac acc agg ggc ttc ctg att gac ggc tat cct cgg Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro Arg 450 455 460 465	1689
gag gtg aag caa ggg gaa gag ttc gga cgc agg att gga gac cca cag Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro Gln 470 475 480	1737
ttg gtg atc tgt atg gac tgc tcg gca gac acc atg acc aac cgc ctt Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg Leu 485 490 495	1785
ctc caa agg agc cgg agc agc ctg cct gtg gac gac acc acc aag acc Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys Thr 500 505 510	1833
atc gcc aag cgc cta gaa gcc tac tac cga gcg tcc atc ccc gtg atc Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val Ile 515 520 525	1881
gcc tac tac gag aca aaa aca cag cta cac aag ata aat gca gag gga Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu Gly 530 535 540 545	1929
aca cca gag gac gtt ttt ctt caa ctc tgc aca gct att gac tct att Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser Ile 550 555 560	1977
att ttc tgaaggcaaa aatgcatgt. tgtagaatg gaaacagaaaa aacattaaaa	2033

Ile Phe

agttcattcc ttaacacaat gtttcaagtt aaaccttttgc tgtcaccgccc ccccaccaac 2093  
caccacccctcc taaatcctga cagcactgtt tgcttcccag ctagacctgt gtgagaggtg 2153  
tctggaaatc atgcatacggtt tatttggac tatataacc tattctccac acttcagaca 2213  
actgtctgca ctcacggcac gcacactttg tatcatgcag gccacactca gagctagtca 2273  
gtacatgaac agtggtgcggt tgccagtcgt tgccgttgtt gatcacaggc cttgctagac 2333  
cctgatcatc tggttctcct ctcattaagc atccctaacc cccagtcaca ctttcctctt 2393  
acataactgtt ccccaatggc ggccccctggc ataggggaca gcccctggca ttttcctttt 2453  
gtgtctggct gttttgtcaa ctctcatcca ctgggtggctc agagccataa ggtgggttga 2513  
ttacacaatg ctttgtacat gatatacagg catcaagcaa gtaaaatttgc acagaaattt 2573  
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gctatcaatc agttgtaaaa tcagagcttc ttatataattt tactggaaata actgcacatctt 3113  
ccactcagtc actacaaaaaa agcatagttt cagtttgcac gaattttttt tttttcttc 3173  
aatggttgtt cagataagga tccatttctgtt ggatagaattt gtatTTTAA agtcattttt 3233  
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<212> PRT  
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<400> 26

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Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met Cys Ser Lys Pro Glu

20	25	30
Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys Val Lys Glu Leu		
35	40	45
Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val Ser Gln Glu Lys		
50	55	60
Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser Arg Arg Ser Phe Leu		
65	70	75
Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr Arg Arg Tyr Asp		
85	90	95
Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser Asp Thr Asp Leu		
100	105	110
Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr		
115	120	125
Arg Pro Arg Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly		
130	135	140
Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr		
145	150	155
Ile Ser Val Gly Glu Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser		
165	170	175
Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu		
180	185	190
Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln		
195	200	205
Ile Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val		
210	215	220
Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Phe Val		
225	230	235
Val Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys		
245	250	255
Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln		
260	265	270
Arg Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr		
275	280	285
Phe Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu		
290	295	300
Asp Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe		
305	310	315
Pro Asn Lys Glu Ala Ala Ala Gly Ser Ser Asp Leu Asp Pro Ser Met		

325	330	335
Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp 340	345	350
Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp Thr Met Gly Gly 355	360	365
Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe Ile Ile Gly Gly 370	375	380
Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr 385	390	395
Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala 405	410	415
Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile Met Glu Arg Gly 420	425	430
Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu Leu Lys Glu Ala Met 435	440	445
Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro 450	455	460
Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro 465	470	475
Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg 485	490	495
Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys 500	505	510
Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val 515	520	525
Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu 530	535	540
Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser 545	550	555
Ile Ile Phe		

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<211> 490  
<212> DNA  
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<220>  
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<400> 27

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gaa aag ctg gtg gaa aaa tat gga ttt aca cat ctc tca act ggc gag	97
Glu Lys Leu Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu	
20                    25                    30	
ctc ctg cgt gag gaa ctg gca tca gaa tct gaa aga agc aaa ttg atc	145
Leu Leu Arg Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile	
35                    40                    45	
aga gac att atg gaa cgt gga gac ctg gtg ccc tca ggc atc gtt ttg	193
Arg Asp Ile Met Glu Arg Gly Asp Leu Val Pro Ser Gly Ile Val Leu	
50                    55                    60	
gag ctc ctg aag gag gcc atg gtg gcc agc ctc ggg gac acc agg ggc	241
Glu Leu Leu Lys Glu Ala Met Val Ala Ser Leu Gly Asp Thr Arg Gly	
65                    70                    75                    80	
ttc ctg att gac ggc tat cct cgg gag gtg aag caa ggg gaa gag ttc	289
Phe Leu Ile Asp Gly Tyr Pro Arg Glu Val Lys Gln Gly Glu Glu Phe	
85                    90                    95	
gga cgc agg att gga gac cca cag ttg gtg atc tgt atg gac tgc tcg	337
Gly Arg Arg Ile Gly Asp Pro Gln Leu Val Ile Cys Met Asp Cys Ser	
100                  105                    110	
gca gac acc atg acc aac cgc ctt ctc caa agg agc cgg agc agc ctg	385
Ala Asp Thr Met Thr Asn Arg Leu Leu Gln Arg Ser Arg Ser Ser Leu	
115                  120                    125	
cct gtg gac gac acc aag acc atc gcc aag cgc cta gaa gcc tac	433
Pro Val Asp Asp Thr Thr Lys Thr Ile Ala Lys Arg Leu Glu Ala Tyr	
130                  135                    140	
tac cga gcg tcc atc ccc gtg atc gcc tac tac gag aca aaa aca cag	481
Tyr Arg Ala Ser Ile Pro Val Ile Ala Tyr Tyr Glu Thr Lys Thr Gln	
145                  150                    155                    160	
gtc gac ggc	490
Val Asp Gly	
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Glu Lys Leu Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu	
20                    25                    30	
Leu Leu Arg Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile	

35

40

45

Arg Asp Ile Met Glu Arg Gly Asp Leu Val Pro Ser Gly Ile Val Leu  
 50 55 60

Glu Leu Leu Lys Glu Ala Met Val Ala Ser Leu Gly Asp Thr Arg Gly  
 65 70 75 80

Phe Leu Ile Asp Gly Tyr Pro Arg Glu Val Lys Gln Gly Glu Glu Phe  
 85 90 95

Gly Arg Arg Ile Gly Asp Pro Gln Leu Val Ile Cys Met Asp Cys Ser  
 100 105 110

Ala Asp Thr Met Thr Asn Arg Leu Leu Gln Arg Ser Arg Ser Ser Leu  
 115 120 125

Pro Val Asp Asp Thr Thr Lys Thr Ile Ala Lys Arg Leu Glu Ala Tyr  
 130 135 140

Tyr Arg Ala Ser Ile Pro Val Ile Ala Tyr Tyr Glu Thr Lys Thr Gln  
 145 150 155 160

Val Asp Gly

<210> 29

<211> 493

<212> DNA

<213> Homo sapiens

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<222> (2) .. (493)

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 Thr Arg Ser Val Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Ser  
 1 5 10 15

ttg aaa att gca gaa cga tat gga ttc caa tac att tct gtg gga gaa 97  
 Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr Ile Ser Val Gly Glu  
 20 25 30

tta tta aga aag aag atc cac agt acc agc agc aat agg aaa tgg agt 145  
 Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser Asn Arg Lys Trp Ser  
 35 40 45

ctt att gcc aag ata att aca act gga gaa ttg gcc cca cag gaa aca 193  
 Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu Ala Pro Gln Glu Thr  
 50 55 60

aca att aca gag ata aaa caa aaa ttg atg caa ata cct gat gaa gag 241  
 Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln Ile Pro Asp Glu Glu  
 65 70 75 80

ggc att gtt att gat gga ttt cca aga gat gtt gcc cag gct cta tct 289

Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val Ala Gln Ala Leu Ser			
85	90	95	
ttt gag gac caa atc tgt acc ccc gat ttg gtg gta ttc ctg gct tgt			337
Phe Glu Asp Gln Ile Cys Thr Pro Asp Leu Val Val Phe Leu Ala Cys			
100	105	110	
gct aat cag aga ctc aaa gaa aga tta ctg aag cgt gca gaa cag cag			385
Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys Arg Ala Glu Gln Gln			
115	120	125	
ggc cga cca gac gac aat gta aaa gct acc caa agg aga cta atg aac			433
Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln Arg Arg Leu Met Asn			
130	135	140	
ttc aag cag aat gct gct cca ttg gtt aaa tac ttc cag gaa aag ggg			481
Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr Phe Gln Glu Lys Gly			
145	150	155	160
ctc gtc gac ggc			493
Leu Val Asp Gly			
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Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr Ile Ser Val Gly Glu			
20	25	30	
Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser Asn Arg Lys Trp Ser			
35	40	45	
Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu Ala Pro Gln Glu Thr			
50	55	60	
Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln Ile Pro Asp Glu Glu			
65	70	75	80
Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val Ala Gln Ala Leu Ser			
85	90	95	
Phe Glu Asp Gln Ile Cys Thr Pro Asp Leu Val Val Phe Leu Ala Cys			
100	105	110	
Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys Arg Ala Glu Gln Gln			
115	120	125	
Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln Arg Arg Leu Met Asn			
130	135	140	
Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr Phe Gln Glu Lys Gly			

145

150

155

160

Leu Val Asp Gly

&lt;210&gt; 31

&lt;211&gt; 1714

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (2)..(1714)

&lt;400&gt; 31

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Thr Arg Ser Pro Thr Met Asn Thr Asn Asp Ala Lys Glu Tyr Leu Ala	
1	5
	10
	15

cg agg gaa atc cct cag ctt ttt gag agc ctt ttg aat gga ctg atg	97
Arg Arg Glu Ile Pro Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met	
20	25
	30

tgt tct aag ccc gaa gat cca gta gaa tac ttg gaa agt tgt tta caa	145
Cys Ser Lys Pro Glu Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln	
35	40
	45

aaa gta aag gaa ctg ggt ggc tgt gac aag gtg aaa tgg gat aca ttt	193
Lys Val Lys Glu Leu Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe	
50	55
	60

gta agc cag gaa aag aag acc tta cct cca cta aat gga gga cag tca	241
Val Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser	
65	70
	75
	80

cg agg tcc ttt cta aga aat gta atg cct gaa .aac tca aac ttt cca	289
Arg Arg Ser Phe Leu Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro	
85	90
	95

tat cgg cgg tat gac cgg ctc cct cca atc cat caa ttc tcc ata gaa	337
Tyr Arg Arg Tyr Asp Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu	
100	105
	110

agt gac acg gat ctc tct gag act gca gag ttg att gag gag tat gag	385
Ser Asp Thr Asp Leu Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu	
115	120
	125

gtt ttt gat cct acc aga cct cga cca aaa atc att ctt gtt ata ggt	433
Val Phe Asp Pro Thr Arg Pro Arg Pro Lys Ile Ile Leu Val Ile Gly	
130	135
	140

ggt cca gga agt gga aag ggt act cag agt ttg aaa att gca gaa cga	481
Gly Pro Gly Ser Gly Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg	
145	150
	155
	160

tat gga ttc caa tac att tct gtg gga gaa tta tta aga aag aag atc	529
Tyr Gly Phe Gln Tyr Ile Ser Val Gly Glu Leu Leu Arg Lys Ile	

165	170	175	
cac agt acc agc agc aat agg aaa tgg agt ctt att gcc aag ata att His Ser Thr Ser Ser Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile 180	185	190	577
aca act gga gaa ttg gcc cca cag gaa aca aca att aca gag ata aaa Thr Thr Gly Glu Leu Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys 195	200	205	625
caa aaa ttg atg caa ata cct gat gaa gag ggc att gtt att gat gga Gln Lys Leu Met Gln Ile Pro Asp Glu Glu Gly Ile Val Ile Asp Gly 210	215	220	673
ttt cca aga gat gtt gcc cag gct cta tct ttt gag gac caa atc tgt Phe Pro Arg Asp Val Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys 225	230	235	721
acc ccc gat ttg gtg gta ttc ctg gct tgt gct aat cag aga ctc aaa Thr Pro Asp Leu Val Val Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys 245	250	255	769
gaa aga tta ctg aag cgt gca gaa cag cag ggc cga cca gac gac aat Glu Arg Leu Leu Lys Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn 260	265	270	817
gta aaa gct acc caa agg aga cta atg aac ttc aag cag aat gct gct Val Lys Ala Thr Gln Arg Arg Leu Met Asn Phe Lys Gln Asn Ala Ala 275	280	285	865
cca ttg gtt aaa tac ttc cag gaa aag ggg ctc atc atg aca ttt gat Pro Leu Val Lys Tyr Phe Gln Glu Lys Gly Leu Ile Met Thr Phe Asp 290	295	300	913
gcc gac cgc gat gag gat gag gtg ttc tat gac atc agc atg gca gtt Ala Asp Arg Asp Glu Asp Glu Val Phe Tyr Asp Ile Ser Met Ala Val 305	310	315	961
gac aac aag tta ttt cca aac aaa gag gct gca gca ggt tca agt gac Asp Asn Lys Leu Phe Pro Asn Lys Glu Ala Ala Gly Ser Ser Asp 325	330	335	1009
ctt gat cct tcg atg ata ttg gac act gga gag atc att gat aca gga Leu Asp Pro Ser Met Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly 340	345	350	1057
tct gat tat gaa gat cag ggt gat gac cag tta aat gta ttt gga gag Ser Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu 355	360	365	1105
gac act atg gga ggt ttc atg gaa gat ttg aga aag tgt aaa att att Asp Thr Met Gly Gly Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile 370	375	380	1153
ttc ata att ggt ggt cct ggc tct ggc aaa ggc aca cag tgt gaa aag Phe Ile Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys 385	390	395	1201
			400

ctg gtg gaa aaa tat gga ttt aca cat ctc tca act ggc gag ctc ctg Leu Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu 405	410	415	1249	
cgt gag gaa ctg gca tca gaa tct gaa aga agc aaa ttg atc aga gac Arg Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp 420	425	430	1297	
att atg gaa cgt gga gac ctg gtg ccc tca ggc atc gtt ttg gag ctc Ile Met Glu Arg Gly Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu 435	440	445	1345	
ctg aag gag gcc atg gtg gcc agc ctc ggg gac acc agg ggc ttc ctg Leu Lys Glu Ala Met Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu 450	455	460	1393	
att gac ggc tat cct cgg gag gtg aag caa ggg gaa gag ttc gga cgc Ile Asp Gly Tyr Pro Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg 465	470	475	480	1441
agg att gga gac cca cag ttg gtg atc tgt atg gac tgc tcg gca gac Arg Ile Gly Asp Pro Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp 485	490	495	1489	
acc atg acc aac cgc ctt ctccaa agg agc cgg agc agc ctg cct gtg Thr Met Thr Asn Arg Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val 500	505	510	1537	
gac gac acc acc aag acc atc gcc aag cgc cta gaa gcc tac tac cga Asp Asp Thr Thr Lys Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg 515	520	525	1585	
gcg tcc atc ccc gtg atc gcc tac tac gag aca aaa aca cag cta cac Ala Ser Ile Pro Val Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His 530	535	540	1633	
aag ata aat gca gag gga aca cca gag gac gtt ttt ctt caa ctc tgc Lys Ile Asn Ala Glu Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys 545	550	555	560	1681
aca gct att gac tct att att ttc gtc gac ggc Thr Ala Ile Asp Ser Ile Ile Phe Val Asp Gly 565	570		1714	
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<212> PRT				
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<400> 32				
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1	5	10	15	
Arg Arg Glu Ile Pro Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met				
20	25	30		

Cys	Ser	Lys	Pro	Glu	Asp	Pro	Val	Glu	Tyr	Leu	Glu	Ser	Cys	Leu	Gln
35							40						45		
Lys	Val	Lys	Glu	Leu	Gly	Gly	Cys	Asp	Lys	Val	Lys	Trp	Asp	Thr	Phe
50					55						60				
Val	Ser	Gln	Glu	Lys	Lys	Thr	Leu	Pro	Pro	Leu	Asn	Gly	Gly	Gln	Ser
65						70				75				80	
Arg	Arg	Ser	Phe	Leu	Arg	Asn	Val	Met	Pro	Glu	Asn	Ser	Asn	Phe	Pro
								85		90				95	
Tyr	Arg	Arg	Tyr	Asp	Arg	Leu	Pro	Pro	Ile	His	Gln	Phe	Ser	Ile	Glu
						100			105				110		
Ser	Asp	Thr	Asp	Leu	Ser	Glu	Thr	Ala	Glu	Leu	Ile	Glu	Glu	Tyr	Glu
						115			120				125		
Val	Phe	Asp	Pro	Thr	Arg	Pro	Arg	Pro	Lys	Ile	Ile	Leu	Val	Ile	Gly
						130		135				140			
Gly	Pro	Gly	Ser	Gly	Lys	Gly	Thr	Gln	Ser	Leu	Lys	Ile	Ala	Glu	Arg
						145		150			155			160	
Tyr	Gly	Phe	Gln	Tyr	Ile	Ser	Val	Gly	Glu	Leu	Leu	Arg	Lys	Lys	Ile
						165			170				175		
His	Ser	Thr	Ser	Ser	Asn	Arg	Lys	Trp	Ser	Leu	Ile	Ala	Lys	Ile	Ile
						180			185				190		
Thr	Thr	Gly	Glu	Leu	Ala	Pro	Gln	Glu	Thr	Thr	Ile	Thr	Glu	Ile	Lys
						195		200				205			
Gln	Lys	Leu	Met	Gln	Ile	Pro	Asp	Glu	Glu	Gly	Ile	Val	Ile	Asp	Gly
						210		215				220			
Phe	Pro	Arg	Asp	Val	Ala	Gln	Ala	Leu	Ser	Phe	Glu	Asp	Gln	Ile	Cys
						225		230			235			240	
Thr	Pro	Asp	Leu	Val	Val	Phe	Leu	Ala	Cys	Ala	Asn	Gln	Arg	Leu	Lys
						245			250				255		
Glu	Arg	Leu	Leu	Lys	Arg	Ala	Glu	Gln	Gln	Gly	Arg	Pro	Asp	Asp	Asn
						260			265				270		
Val	Lys	Ala	Thr	Gln	Arg	Arg	Leu	Met	Asn	Phe	Lys	Gln	Asn	Ala	Ala
							275		280				285		
Pro	Leu	Val	Lys	Tyr	Phe	Gln	Glu	Lys	Gly	Leu	Ile	Met	Thr	Phe	Asp
						290		295				300			
Ala	Asp	Arg	Asp	Glu	Asp	Glu	Val	Phe	Tyr	Asp	Ile	Ser	Met	Ala	Val
							305		310			315			320
Asp	Asn	Lys	Leu	Phe	Pro	Asn	Lys	Glu	Ala	Ala	Ala	Gly	Ser	Ser	Asp
							325			330			335		

Leu Asp Pro Ser Met Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly  
           340                         345                         350  
  
 Ser Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu  
           355                         360                         365  
  
 Asp Thr Met Gly Gly Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile  
           370                         375                         380  
  
 Phe Ile Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys  
           385                         390                         395                         400  
  
 Leu Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu  
           405                         410                         415  
  
 Arg Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp  
           420                         425                         430  
  
 Ile Met Glu Arg Gly Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu  
           435                         440                         445  
  
 Leu Lys Glu Ala Met Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu  
           450                         455                         460  
  
 Ile Asp Gly Tyr Pro Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg  
           465                         470                         475                         480  
  
 Arg Ile Gly Asp Pro Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp  
           485                         490                         495  
  
 Thr Met Thr Asn Arg Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val  
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 Asp Asp Thr Thr Lys Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg  
           515                         520                         525  
  
 Ala Ser Ile Pro Val Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His  
           530                         535                         540  
  
 Lys Ile Asn Ala Glu Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys  
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cgg agg gaa atc cct cag ctt ttt gag agc ctt ttg aat gga ctg atg Arg Arg Glu Ile Pro Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met	20	25	30	97
tgt tct aag ccc gaa gat cca gta gaa tac ttg gaa agt tgt tta caa Cys Ser Lys Pro Glu Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln	35	40	45	145
aaa gta aag gaa ctg ggt ggc tgt gac aag gtg aaa tgg gat aca ttt Lys Val Lys Glu Leu Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe	50	55	60	193
gta agc cag gaa aag aag acc tta cct cca cta aat gga gga cag tca Val Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser	65	70	75	241
cg <sup>g</sup> aga tcc ttt cta aga aat gaa agt gac acg gat ctc tct gag act Arg Arg Ser Phe Leu Arg Asn Glu Ser Asp Thr Asp Leu Ser Glu Thr	85	90	95	289
gca gag ttg att gag gag tat gag gtt ttt gat cct acc aga cct cga Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr Arg Pro Arg	100	105	110	337
cca aaa atc att ctt gtt ata ggt ggt cca gga agt gga aag ggt act Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr	115	120	125	385
cag agt ttg aaa att gca gaa cga tat gga ttccaa tac att tct gtg Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr Ile Ser Val	130	135	140	433
gga gaa tta tta aga aag aag atc cac agt acc agc agc aat agg aaa Gly Glu Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser Asn Arg Lys	145	150	155	481
tgg agt ctt att gcc aag ata att aca act gga gaa ttg gcc cca cag Trp Ser Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu Ala Pro Gln	165	170	175	529
gaa aca aca att aca gag ata aaa caa aaa ttg atg caa ata cct gat Glu Thr Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln Ile Pro Asp	180	185	190	577
gaa gag ggc att gtt att gat gga ttt cca aga gat gtt gcc cag gct Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val Ala Gln Ala	195	200	205	625
cta tct ttt gag gac caa atc tgt acc ccc gat ttg gtg gta ttc ctg Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Leu Val Val Phe Leu	210	215	220	673
gct tgt gct aat cag aga ctc aaa gaa aga tta ctg aag cgt gca gaa Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys Arg Ala Glu	225	230	235	721
				240

cag cag ggc cga cca gac gac aat gta aaa gct acc caa agg aga cta		769	
Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln Arg Arg Leu			
245	250	255	
atg aac ttc aag cag aat gct gct cca ttg gtt aaa tac ttc cag gaa		817	
Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr Phe Gln Glu			
260	265	270	
aag ggg ctc atc atg aca ttt gat gcc gac cgc gat gag gat gag gtg		865	
Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu Asp Glu Val			
275	280	285	
ttc tat gac atc agc atg gca gtt gac aac aag tta ttt cca aac aaa		913	
Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe Pro Asn Lys			
290	295	300	
gag gct gca gca ggt tca agt gac ctt gat cct tcg atg ata ttg gac		961	
Glu Ala Ala Ala Gly Ser Ser Asp Leu Asp Pro Ser Met Ile Leu Asp			
305	310	315	320
act gga gag atc att gat aca gga tct gat tat gaa gat cag ggt gat		1009	
Thr Gly Glu Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp Gln Gly Asp			
325	330	335	
gac cag tta aat gta ttt gga gag gac act atg gga ggt ttc atg gaa		1057	
Asp Gln Leu Asn Val Phe Gly Glu Asp Thr Met Gly Gly Phe Met Glu			
340	345	350	
gat ttg aga aag tgt aaa att att ttc ata att ggt ggt cct ggc tct		1105	
Asp Leu Arg Lys Cys Lys Ile Ile Phe Ile Ile Gly Gly Pro Gly Ser			
355	360	365	
ggc aaa ggc aca cag tgt gaa aag ctg gtg gaa aaa tat gga ttt aca		1153	
Gly Lys Gly Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr Gly Phe Thr			
370	375	380	
cat ctc tca act ggc gag ctc ctg cgt gag gaa ctg gca tca gaa tct		1201	
His Leu Ser Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala Ser Glu Ser			
385	390	395	400
gaa aga agc aaa ttg atc aga gac att atg gaa cgt gga gac ctg gtg		1249	
Glu Arg Ser Lys Leu Ile Arg Asp Ile Met Glu Arg Gly Asp Leu Val			
405	410	415	
ccc tca ggc atc gtt ttg gag ctc ctg aag gag gcc atg gtg gcc agc		1297	
Pro Ser Gly Ile Val Leu Glu Leu Leu Lys Glu Ala Met Val Ala Ser			
420	425	430	
ctc ggg gac acc agg ggc ttc ctg att gac ggc tat cct cgg gag gtg		1345	
Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro Arg Glu Val			
435	440	445	
aag caa ggg gaa gag ttc gga cgc agg att gga gac cca cag ttg gtg		1393	
Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro Gln Leu Val			
450	455	460	

atc tgt atg gac tgc tcg gca gac acc atg acc aac cgc ctt ctc caa Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg Leu Leu Gln	465	470	475	480	1441
agg agc cg <sup>g</sup> agc agc ctg cct gtg gac gac acc acc aag acc atc gcc Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys Thr Ile Ala	485	490	495		1489
aag cgc cta gaa gcc tac tac cga gcg tcc atc ccc gtg atc gcc tac Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val Ile Ala Tyr	500	505	510		1537
tac gag aca aaa aca cag cta cac aag ata aat gca gag gga aca cca Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu Gly Thr Pro	515	520	525		1585
gag gac gtt ttt ctt caa ctc tgc aca gct att gac tct att att ttc Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser Ile Ile Phe	530	535	540		1633
gtc gac ggc Val Asp Gly	545				1642
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Arg Arg Glu Ile Pro Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met	20	25	30		
Cys Ser Lys Pro Glu Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln	35	40	45		
Lys Val Lys Glu Leu Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe	50	55	60		
Val Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser	65	70	75	80	
Arg Arg Ser Phe Leu Arg Asn Glu Ser Asp Thr Asp Leu Ser Glu Thr	85	90	95		
Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr Arg Pro Arg	100	105	110		
Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr	115	120	125		
Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr Ile Ser Val	130	135	140		

Gly Glu Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser Asn Arg Lys  
 145 150 155 160  
 Trp Ser Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu Ala Pro Gln  
 165 170 175  
 Glu Thr Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln Ile Pro Asp  
 180 185 190  
 Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val Ala Gln Ala  
 195 200 205  
 Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Leu Val Val Phe Leu  
 210 215 220  
 Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys Arg Ala Glu  
 225 230 235 240  
 Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln Arg Arg Leu  
 245 250 255  
 Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr Phe Gln Glu  
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 Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu Asp Glu Val  
 ~ 275 280 285  
 Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe Pro Asn Lys  
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 His Leu Ser Thr Gly Glu Leu Leu Arg Glu Leu Ala Ser Glu Ser  
 385 390 395 400  
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 405 410 415  
 Pro Ser Gly Ile Val Leu Glu Leu Lys Glu Ala Met Val Ala Ser  
 420 425 430  
 Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro Arg Glu Val  
 435 440 445

Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro Gln Leu Val  
450 455 460

Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg Leu Leu Gln  
465 470 475 480

Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys Thr Ile Ala  
485 490 495

Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val Ile Ala Tyr  
500 505 510

Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu Gly Thr Pro  
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Val Asp Gly  
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gagaggcggg gggggtcctt ggcctggcg gagaggctga gctgagtgcg cgtgagaaaag 180  
agggtgcac cgctgctcg cgcggactct gccagccca gttcagccc cggctcaggt 240  
cgccgcagcc cgggagcctc cccgcttgcg ccccaaggca cgccgcggcac agccatgaac 300  
accaacgatg ccaaggagta tctggcccg agggaaatcc ctcagttata tttgagagcc 360  
ttttgaatgg actg atg tgt tct aag ccc gaa gat cca gta gaa tac ttg 410  
Met Cys Ser Lys Pro Glu Asp Pro Val Glu Tyr Leu  
1 5 10

gaa agt tgt tta caa aaa gta aag gaa ctg ggt ggc tgt gac aag gtg 458  
Glu Ser Cys Leu Gln Lys Val Lys Glu Leu Gly Gly Cys Asp Lys Val  
15 20 25

aaa tgg gat aca ttt gta agc cag gaa aag aag acc tta cct cca cta 506  
Lys Trp Asp Thr Phe Val Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu  
30 35 40

aat gga gga cag tca cgg aga tcc ttt cta aga aat gta atg cct gaa 554  
Asn Gly Gly Gln Ser Arg Arg Ser Phe Leu Arg Asn Val Met Pro Glu

45	50	55	60	
aac tca aac ttt cca tat cgg cgg tat gac cgg ctc cct cca atc cat Asn Ser Asn Phe Pro Tyr Arg Arg Tyr Asp Arg Leu Pro Pro Ile His				602
65		70	75	
caa ttc tcc ata gaa agt gac acg gat ctc tct gag act gcg gag ttg Gln Phe Ser Ile Glu Ser Asp Thr Asp Leu Ser Glu Thr Ala Glu Leu				650
80	85		90	
att gag gag tat gag gtt ttt gat cct acc aga cct cga cca aaa atc Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr Arg Pro Arg Pro Lys Ile				698
95	100		105	
att ctt gtt ata ggt ggt cca gga agt gga aag ggt act cag agt ttg Ile Leu Val Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Ser Leu				746
110	115		120	
aaa att gca gaa cga tat gga ttc caa tac att tct gtg gga gaa tta Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr Ile Ser Val Gly Glu Leu				794
125	130	135		140
tta aga aag aag atc cac agt acc agc agc aat agg aaa tgg agt ctt Leu Arg Lys Lys Ile His Ser Thr Ser Asn Arg Lys Trp Ser Leu				842
145		150		155
att gcc aag ata att aca act gga gaa ttg gcc cca cag gaa aca aca Ile Ala Lys Ile Thr Thr Gly Glu Leu Ala Pro Gln Glu Thr Thr				890
160	165		170	
att aca gag ata aaa caa aaa ttg atg caa ata cct gat gaa gag ggc Ile Thr Glu Ile Lys Gln Lys Leu Met Gln Ile Pro Asp Glu Glu Gly				938
175	180		185	
att gtt att gat gga ttt cca aga gat gtt gcc cag qct cta tct ttt Ile Val Ile Asp Gly Phe Pro Arg Asp Val Ala Gln Ala Leu Ser Phe				986
190	195	200		
gag gac cag atc tgt acc ccc gat ttg gtg gta ttc ctg gct tgt gct Glu Asp Gln Ile Cys Thr Pro Asp Leu Val Val Phe Leu Ala Cys Ala				1034
205	210	215		220
aat cag aga ctc aaa gaa aga tta ctg aag cgt gca gaa cag cag ggc Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys Arg Ala Glu Gln Gln Gly				1082
225	230		235	
cga cca gac gac aat gta aaa gct acc caa agg aga cta atg aac ttc Arg Pro Asp Asp Asn Val Lys Ala Thr Gln Arg Arg Leu Met Asn Phe				1130
240	245		250	
aag cag aat gct gct cca ttg gtt aaa tac ttc cag gaa aag ggg ctc Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr Phe Gln Glu Lys Gly Leu				1178
255	260		265	
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270	275		280	

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Ile Ser Met Ala Val Asp Asn Lys Leu Phe Pro Asn Lys Glu Ala Ala  
285 290 295 300  
  
gca ggt tca agt gac ctt gat cct tcg atg ata ttg gac act gga gag 1322  
Ala Gly Ser Ser Asp Leu Asp Pro Ser Met Ile Leu Asp Thr Gly Glu  
305 310 315  
  
atc att gat aca gga tct gat tat gaa gat cag ggt gat gac cag tta 1370  
Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu  
320 325 330  
  
aat gta ttt gga gag gac act atg gga ggt ttc atg gaa gat ttg aga 1418  
Asn Val Phe Gly Glu Asp Thr Met Gly Gly Phe Met Glu Asp Leu Arg  
335 340 345  
  
aag tgt aaa att att ttc ata att ggt ggt cct ggc tct ggc aaa ggc 1466  
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350 355 360  
  
aca cag tgt gaa aag ctg gtg gaa aaa tat gga ttt aca cat ctc tca 1514  
Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr Gly Phe Thr His Leu Ser  
365 370 375 380  
  
act ggc gag ctc ctg cgt gag gaa ctg gca tca gaa tct gaa aga agc 1562  
Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser  
385 390 395  
  
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Lys Leu Ile Arg Asp Ile Met Glu Arg Gly Asp Leu Val Pro Ser Gly  
400 405 410  
  
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Ile Val Trp Ser Ser  
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Phe Val Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln  
35 40 45

Ser Arg Arg Ser Phe Leu Arg Asn Val Met Pro Glu Asn Ser Asn Phe  
 50 55 60  
 Pro Tyr Arg Arg Tyr Asp Arg Leu Pro Pro Ile His Gln Phe Ser Ile  
 65 70 75 80  
 Glu Ser Asp Thr Asp Leu Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr  
 85 90 95  
 Glu Val Phe Asp Pro Thr Arg Pro Arg Pro Lys Ile Ile Leu Val Ile  
 100 105 110  
 Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu  
 115 120 125  
 Arg Tyr Gly Phe Gln Tyr Ile Ser Val Gly Glu Leu Leu Arg Lys Lys  
 130 135 140  
 Ile His Ser Thr Ser Ser Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile  
 145 150 155 160  
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 165 170 175  
 Lys Gln Lys Leu Met Gln Ile Pro Asp Glu Glu Gly Ile Val Ile Asp  
 180 185 190  
 Gly Phe Pro Arg Asp Val Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile  
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 Cys Thr Pro Asp Leu Val Val Phe Leu Ala Cys Ala Asn Gln Arg Leu  
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 Lys Glu Arg Leu Leu Lys Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp  
 225 230 235 240  
 Asn Val Lys Ala Thr Gln Arg Arg Leu Met Asn Phe Lys Gln Asn Ala  
 245 250 255  
 Ala Pro Leu Val Lys Tyr Phe Gln Glu Lys Gly Leu Ile Met Thr Phe  
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 Asp Ala Asp Arg Asp Glu Asp Glu Val Phe Tyr Asp Ile Ser Met Ala  
 275 280 285  
 Val Asp Asn Lys Leu Phe Pro Asn Lys Glu Ala Ala Ala Gly Ser Ser  
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 Asp Leu Asp Pro Ser Met Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr  
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 Gly Ser Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu Asn Val Phe Gly  
 325 330 335  
 Glu Asp Thr Met Gly Gly Phe Met Glu Asp Leu Arg Lys Cys Lys Ile  
 340 345 350

Ile Phe Ile Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu  
355 360 365

Lys Leu Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu Leu  
370 375 380

Leu Arg Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg  
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Ser

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Arg Glu Ile Pro Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met Cys
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 Ser Lys Pro Glu Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys  
           30                35                40

gta aag gaa ctg ggt ggc tgt gac aag gtg aaa tgg gat aca ttt gta      196  
 Val Lys Glu Leu Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val  
   45                50                55                60

agc cag gaa aag aag acc tta cct cca cta aat gga gga cag tca cg 244  
Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser Arg  
65 70 75

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aga tcc ttt cta aga aat gta atg cct gaa aac tca aac ttt cca tat 292
Arg Ser Phe Leu Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr
          80           85           90

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cgg cggtat gac cggtcttccatcaatccatcaatccataaaatgg 340  
 Arg Arg Tyr Asp Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser  
 95 100 105

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gac acg gat ctc tct gag act gca gag ttg att gag gag tat gag gtt      388
Asp Thr Asp Leu Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val
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		140
cca gga agt gga aag ggt act cag agt ttg aaa att gca gaa cga tat		484
Pro Gly Ser Gly Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr		
145	150	155
gga ttc caa tac att tct gtg gga gaa tta tta aga aag aag atc cac		532
Gly Phe Gln Tyr Ile Ser Val Gly Glu Leu Leu Arg Lys Lys Ile His		
160	165	170
agt acc agc agc aat agg aaa tgg agt ctt att gcc aag ata att aca		580
Ser Thr Ser Ser Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile Thr		
175	180	185
act gga gaa ttg gcc cca cag gaa aca aca att aca gag ata aaa caa		628
Thr Gly Glu Leu Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys Gln		
190	195	200
aaa ttg atg caa ata cct gat gaa gag ggc att gtt att gat gga ttt		676
Lys Leu Met Gln Ile Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe		
205	210	215
		220
cca aga gat gtt gcc cag gct cta tct ttt gag gac caa atc tgt acc		724
Pro Arg Asp Val Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr		
225	230	235
ccc gat ttg gtg gta ttc ctg gct tgt gct aat cag aga ctc aaa gaa		772
Pro Asp Leu Val Val Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu		
240	245	250
aga tta ctg aag cgt gca gaa cag cag ggc cga cca gac gac aat gta		820
Arg Leu Leu Lys Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val		
255	260	265
aaa gct acc caa agg aga cta atg aac ttc aag cag aat gct gct cca		868
Lys Ala Thr Gln Arg Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro		
270	275	280
ttg gtt aaa tac ttc cag gaa aag ggg ctc atc atg aca ttt gat gcc		916
Leu Val Lys Tyr Phe Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala		
285	290	295
		300
gac cgc gat gag gat gag gtg ttc tat gac atc agc atg gca gtt gac		964
Asp Arg Asp Glu Asp Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp		
305	310	315
aac aag tta ttt cca aac aaa gag gct gca gca ggt tca agt gac ctt		1012
Asn Lys Leu Phe Pro Asn Lys Glu Ala Ala Gly Ser Ser Asp Leu		
320	325	330
gat cct tcg atg ata ttg gac act gga gag atc att gat aca gga tct		1060
Asp Pro Ser Met Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser		
335	340	345

gat tat gaa gat cag ggt gat gac cag tta aat gta ttt gga gag gac Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp 350 355 360	1108
act atg gga ggt ttc atg gaa gat ttg aga aag tgt aaa att att ttc Thr Met Gly Gly Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe 365 370 375 380	1156
ata att ggt ggt cct ggc tct ggc aaa ggc aca cag tgt gaa aag ctg Ile Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu 385 390 395	1204
gtg gaa aaa tat gga ttt aca cat ctc tca act ggc gag ctc ctg cgt Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg 400 405 410	1252
gag gaa ctg gca tca gaa tct gaa aga agc aaa ttg atc aga gac att Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile 415 420 425	1300
atg gaa cgt gga gac ctg gtg ccc tca ggc atc gtt ttg gag ctc ctg Met Glu Arg Gly Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu Leu 430 435 440	1348
aag gag gcc atg gtg gcc agc ctc ggg gac acc agg ggc ttc ctg att Lys Glu Ala Met Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile 445 450 455 460	1396
gac ggc tat cct cgg gag gtg aag caa ggg gaa gag ttc gga cgc agg Asp Gly Tyr Pro Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg 465 470 475	1444
att gga gac cca cag ttg gtg atc tgt atg gac tgc tcg gca gac acc Ile Gly Asp Pro Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr 480 485 490	1492
atg acc aac cgc ctt ctc caa agg agc cgg agc agc ctg cct gtg gac Met Thr Asn Arg Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp 495 500 505	1540
gac acc acc aag acc atc gcc aag cgc cta gaa gcc tac tac cga gcg Asp Thr Thr Lys Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala 510 515 520	1588
tcc atc ccc gtg atc gcc tac tac gag aca aaa aca cag cta cac aag Ser Ile Pro Val Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys 525 530 535 540	1636
ata aat gca gag gga aca cca gag gac gtt ttt ctt caa ctc tgc aca Ile Asn Ala Glu Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr 545 550 555	1684
gct att gac tct att att ttc gtcgacggc Ala Ile Asp Ser Ile Ile Phe 560	1714

<211> 563  
 <212> PRT  
 <213> Homo sapiens

<400> 38  
 Met Asn Thr Asn Asp Ala Lys Glu Tyr Leu Ala Arg Arg Glu Ile Pro  
 1 5 10 15

Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met Cys Ser Lys Pro Glu  
 20 25 30

Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys Val Lys Glu Leu  
 35 40 45

Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val Ser Gln Glu Lys  
 50 55 60

Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser Arg Arg Ser Phe Leu  
 65 70 75 80

Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr Arg Arg Tyr Asp  
 85 90 95

Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser Asp Thr Asp Leu  
 100 105 110

Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr  
 115 120 125

Arg Pro Arg Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly  
 130 135 140

Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr  
 145 150 155 160

Ile Ser Val Gly Glu Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser  
 165 170 175

Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu  
 180 185 190

Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln  
 195 200 205

Ile Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val  
 210 215 220

Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Leu Val  
 225 230 235 240

Val Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys  
 245 250 255

Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln  
 260 265 270

Arg Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr

275

280

285

Phe Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu  
 290                           295                           300

Asp Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe  
 305                           310                           315                           320

Pro Asn Lys Glu Ala Ala Ala Gly Ser Ser Asp Leu Asp Pro Ser Met  
 325                           330                           335

Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp  
 340                           345                           350

Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp Thr Met Gly Gly  
 355                           360                           365

Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe Ile Ile Gly Gly  
 370                           375                           380

Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr  
 385                           390                           395                           400

Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala  
 405                           410                           415

Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile Met Glu Arg Gly  
 420                           425                           430

Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu Leu Lys Glu Ala Met  
 435                           440                           445

Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro  
 450                           455                           460

Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro  
 465                           470                           475                           480

Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg  
 485                           490                           495

Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys  
 500                           505                           510

Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val  
 515                           520                           525

Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu  
 530                           535                           540

Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser  
 545                           550                           555                           560

Ile Ile Phe

<211> 1714

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (14)..(1702)

<400> 39

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Met Asn Thr Asn Asp Ala Lys Glu Tyr Leu Ala Arg	
1 5 10	

agg gaa atc cct cag ctt ttt gag agc ctt ttg aat gga ctg atg tgt	97
Arg Glu Ile Pro Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met Cys	
15 20 25	

tct aag ccc gaa gat cca gta gaa tac ttg gaa agt tgt tta caa aaa	145
Ser Lys Pro Glu Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys	
30 35 40	

gta aag gaa ctg ggt ggc tgt gac aag gtg aaa tgg gat aca ttt gta	193
Val Lys Glu Leu Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val	
45 50 55 60	

agc cag gaa aag aag acc tta cct cca cta aat gga gga cag tca cg	241
Ser Gln Glu Lys Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser Arg	
65 70 75	

aga tcc ttt cta aga aat gta atg cct gaa aac tca aac ttt cca tat	289
Arg Ser Phe Leu Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr	
80 85 90	

cgg cgg tat gac cg ctc cct cca atc cat caa ttc tcc ata gaa agt	337
Arg Arg Tyr Asp Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser	
95 100 105	

gac acg gat ctc tct gag act gca gag ttg att gag gag tat gag gtt	385
Asp Thr Asp Leu Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val	
110 115 120	

ttt gat cct acc aga cct cga cca aaa atc att ctt gtt ata ggt ggt	433
Phe Asp Pro Thr Arg Pro Arg Pro Lys Ile Ile Leu Val Ile Gly Gly	
125 130 135 140	

cca gga agt gga aag ggt act cag agt ttg aaa att gca gaa cga tat	481
Pro Gly Ser Gly Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr	
145 150 155	

gga ttc caa tac att tct gtg gga gaa tta tta aga aag aag atc cac	529
Gly Phe Gln Tyr Ile Ser Val Gly Glu Leu Leu Arg Lys Lys Ile His	
160 165 170	

agt acc agc agc aat agg aaa tgg agt ctt att gcc aag ata att aca	577
Ser Thr Ser Ser Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile Thr	
175 180 185	

act gga gaa ttg gcc cca cag gaa aca aca att aca gag ata aaa caa		625	
Thr Gly Glu Leu Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys Gln			
190	195	200	
aaa ttg atg caa ata cct gat gaa gag ggc att gtt att gat gga ttt		673	
Lys Leu Met Gln Ile Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe			
205	210	215	220
cca aga gat gtt gcc cag gct cta tct ttt gag gac caa atc tgt acc		721	
Pro Arg Asp Val Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr			
225	230	235	
ccc gat ttg gtg gta ttc ctg gct tgt gct aat cag aga ctc aaa gaa		769	
Pro Asp Leu Val Val Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu			
240	245	250	
aga tta ctg aag cgt gca gaa cag cag ggc cga cca gac gac aat gta		817	
Arg Leu Leu Lys Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val			
255	260	265	
aaa gct acc caa agg aga cta atg aac ttc aag cag aat gct gct cca		865	
Lys Ala Thr Gln Arg Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro			
270	275	280	
ttg gtt aaa tac ttc cag gaa aag ggg ctc atc atg aca ttt gat .gcc		913	
Leu Val Lys Tyr Phe Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala			
285	290	295	300
gac cgc gat gag gat gag gtg ttc tat gac atc agc atg gca gtt gac		961	
Asp Arg Asp Glu Asp Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp			
305	310	315	
aac aag tta ttt cca aac aaa gag gct gca gca ggt tca agt gac ctt		1009	
Asn Lys Leu Phe Pro Asn Lys Glu Ala Ala Ala Gly Ser Ser Asp Leu			
320	325	330	
gat cct tcg atg ata ttg gac act gga gag atc att gat aca gga tct		1057	
Asp Pro Ser Met Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser			
335	340	345	
gat tat gaa gat cag ggt gat gac cag tta aat gta ttt gga gag gac		1105	
Asp Tyr Glu Asp Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp			
350	355	360	
act atg gga ggt ttc atg gaa gat ttg aga aag tgt aaa att att ttc		1153	
Thr Met Gly Gly Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe			
365	370	375	380
ata att ggt ggt cct ggc tct ggc aaa ggc aca cag tgt gaa aag ctg		1201	
Ile Ile Gly Gly Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu			
385	390	395	
gtg gaa aaa tat gga ttt aca cat ctc tca act ggc gag ctc ctg cgt		1249	
Val Glu Lys Tyr Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg			
400	405	410	
gag gaa ctg gca tca gaa tct gaa aga agc aaa ttg atc aga gac att		1297	

Glu Glu Leu Ala Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile				
415	420	425		
atg gaa cgt gga gac ctg gtg ccc tca ggc atc gtt ttg gag ctc ctg				1345
Met Glu Arg Gly Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu Leu				
430	435	440		
aag gag gcc atg gtg gcc agc ctc ggg gac acc agg ggc ttc ctg att				1393
Lys Glu Ala Met Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile				
445	450	455	460	
gac ggc tat cct cgg gag gtg aag caa ggg gaa gag ttc gga cgc agg				1441
Asp Gly Tyr Pro Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg				
465	470	475		
att gga gac cca cag ttg gtg atc tgt atg gac tgc tcg gca gac acc				1489
Ile Gly Asp Pro Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr				
480	485	490		
atg acc aac cgc ctt ctc caa agg agc cgg agc agc ctg cct gtg gac				1537
Met Thr Asn Arg Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp				
495	500	505		
gac acc acc aag acc atc gcc aag cgc cta gaa gcc tac tac cga gcg				1585
Asp Thr Thr Lys Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala				
510	515	520		
tcc atc ccc gtg atc gcc tac tac gag aca aaa aca cag cta cac aag				1633
Ser Ile Pro Val Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys				
525	530	535	540	
ata aat gca gag gga aca cca gag gac gtt ttt ctt caa ctc tgc aca				1681
Ile Asn Ala Glu Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr				
545	550	555		
gct att gac tct att att ttc tagctcgagg gc				1714
Ala Ile Asp Ser Ile Ile Phe				
560				
<210> 40				
<211> 563				
<212> PRT				
<213> Homo sapiens				
<400> 40				
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1	5	10		
Gln Leu Phe Glu Ser Leu Leu Asn Gly Leu Met Cys Ser Lys Pro Glu				
20	25	30		
Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys Val Lys Glu Leu				
35	40	45		
Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val Ser Gln Glu Lys				
50	55	60		

Lys Thr Leu Pro Pro Leu Asn Gly Gly Gln Ser Arg Arg Ser Phe Leu  
 65                    70                    75                    80  
  
 Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr Arg Arg Tyr Asp  
 85                    90                    95  
  
 Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser Asp Thr Asp Leu  
 100                  105                  110  
  
 Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr  
 115                  120                  125  
  
 Arg Pro Arg Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly  
 130                  135                  140  
  
 Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr  
 145                  150                  155                  160  
  
 Ile Ser Val Gly Glu Leu Leu Arg Lys Lys Ile His Ser Thr Ser Ser  
 165                  170                  175  
  
 Asn Arg Lys Trp Ser Leu Ile Ala Lys Ile Ile Thr Thr Gly Glu Leu  
 180                  185                  190  
  
 Ala Pro Gln Glu Thr Thr Ile Thr Glu Ile Lys Gln Lys Leu Met Gln  
 195                  200                  205  
  
 Ile Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val  
 210                  215                  220  
  
 Ala Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Leu Val  
 225                  230                  235                  240  
  
 Val Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys  
 245                  250                  255  
  
 Arg Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln  
 260                  265                  270  
  
 Arg Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr  
 275                  280                  285  
  
 Phe Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu  
 290                  295                  300  
  
 Asp Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe  
 305                  310                  315                  320  
  
 Pro Asn Lys Glu Ala Ala Ala Gly Ser Ser Asp Leu Asp Pro Ser Met  
 325                  330                  335  
  
 Ile Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp  
 340                  345                  350  
  
 Gln Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp Thr Met Gly Gly  
 355                  360                  365

Phe Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe Ile Ile Gly Gly  
370 375 380

Pro Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr  
385 390 395 400

Gly Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala  
405 410 415

Ser Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile Met Glu Arg Gly  
420 425 430

Asp Leu Val Pro Ser Gly Ile Val Leu Glu Leu Leu Lys Glu Ala Met  
435 440 445

Val Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro  
450 455 460

Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro  
465 470 475 480

Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg  
485 490 495

Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys  
500 505 510

Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val  
515 520 525

Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu  
530 535 540

Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser  
545 550 555 560

Ile Ile Phe

<210> 41

<211> 3309

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (295)..(1983)

<400> 41

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gagaggcggg ggggggtccct ggcctggcgc gagaggctga gctgagtgcg cgtgagaaag 180

agggctgcac cgctgctcgg cgccggactct gccagccccca gcttcagccc cggctcaggt 240

cgccgcagcc	cgggagcctc	cccgcttgcg	ccccaggca	cgcgccac	agcc	atg	297
						Met	
						1	
aac acc aac gat gcc aag gag tat ctg	gcc cgg	agg gaa atc cct cag					345
Asn Thr Asn Asp Ala Lys Glu Tyr	Leu Ala Arg Arg Glu Ile Pro Gln						
5	10	15					
ctt ttt gag agc ctt ttg aat gga	ctg atg tgt tct aag ccc	gaa gat					393
Leu Phe Glu Ser Leu Leu Asn Gly	Leu Met Cys Ser Lys Pro Glu Asp						
20	25	30					
cca gta gaa tac ttg gaa agt tgt	tta caa aaa gta aag gaa	ctg ggt					441
Pro Val Glu Tyr Leu Glu Ser Cys	Leu Gln Lys Val Lys Glu Leu Gly						
35	40	45					
ggc tgt gac aag gtg aaa tgg gat aca	ttt gta agc cag gaa aag aag						489
Gly Cys Asp Lys Val Lys Trp Asp Thr	Phe Val Ser Gln Glu Lys Lys						
50	55	60	65				
acc tta cct cca cta aat gga gga	cag tca cgg aga tcc ttt cta aga						537
Thr Leu Pro Pro Leu Asn Gly Gln	Ser Arg Arg Ser Phe Leu Arg						
70	75	80					
aat gta atg cct gaa aac tca aac	ttt cca tat cgg cgg tat gac	cgg					585
Asn Val Met Pro Glu Asn Ser Asn	Phe Pro Tyr Arg Arg Tyr Asp Arg						
85	90	95					
ctc cct cca atc cat caa ttc tcc	ata gaa agt gac acg gat	ctc tct					633
Leu Pro Pro Ile His Gln Phe Ser	Ile Glu Ser Asp Thr Asp Leu Ser						
100	105	110					
gag act gcg gag ttg att gag	gag tat gag gtt ttt gat cct acc	aga					681
Glu Thr Ala Glu Leu Ile Glu	Glu Tyr Glu Val Phe Asp Pro Thr Arg						
115	120	125					
cct cga cca aaa atc att ctt	gtt ata ggt ggt cca gga	agt gga aag					729
Pro Arg Pro Lys Ile Ile Leu Val	Ile Gly Gly Pro Gly Ser Gly Lys						
130	135	140	145				
ggt act cag agt ttg aaa att	gca gaa cga tat gga ttc	caa tac att					777
Gly Thr Gln Ser Leu Lys Ile Ala	Glu Arg Tyr Gly Phe Gln Tyr Ile						
150	155	160					
tct gtg gga gaa tta tta	aga aag atc cac agt acc	agc agc aat					825
Ser Val Gly Glu Leu Leu Arg Lys	Lys Ile His Ser Thr Ser Asn						
165	170	175					
agg aaa tgg agt ctt att	gcc aag ata att aca act	gga gaa ttg gcc					873
Arg Lys Trp Ser Leu Ile Ala Lys	Ile Ile Thr Thr Gly Glu Leu Ala						
180	185	190					
cca cag gaa aca aca att	aca gag ata aaa caa	aaa ttg atg caa ata					921
Pro Gln Glu Thr Thr Ile Thr	Glu Ile Lys Gln Lys Leu Met Gln Ile						
195	200	205					
cct gat gaa gag ggc att	gtt att gat gga ttt cca	aga gat gtt gcc					969

Pro Asp Glu Glu Gly Ile Val Ile Asp Gly Phe Pro Arg Asp Val Ala			
210	215	220	225
cag gct cta tct ttt gag gac caa atc tgt acc ccc gat ttt gtg gta			1017
Gln Ala Leu Ser Phe Glu Asp Gln Ile Cys Thr Pro Asp Phe Val Val			
230	235	240	
tgc ctg gct tgt gct aat cag aga ctc aaa gaa aga tta ctg aag cgt			1065
Phe Leu Ala Cys Ala Asn Gln Arg Leu Lys Glu Arg Leu Leu Lys Arg			
245	250	255	
gca gaa cag cag ggc cga cca gac gac aat gta aaa gct acc caa agg			1113
Ala Glu Gln Gln Gly Arg Pro Asp Asp Asn Val Lys Ala Thr Gln Arg			
260	265	270	
aga cta atg aac ttc aag cag aat gct gct cca ttg gtt aaa tac ttc			1161
Arg Leu Met Asn Phe Lys Gln Asn Ala Ala Pro Leu Val Lys Tyr Phe			
275	280	285	
cag gaa aag ggg ctc atc atg aca ttt gat gcc gac cgc gat gag gat			1209
Gln Glu Lys Gly Leu Ile Met Thr Phe Asp Ala Asp Arg Asp Glu Asp			
290	295	300	305
gag gtg ttc tat gac atc agc atg gca gtt gac aac aag tta ttt cca			1257
Glu Val Phe Tyr Asp Ile Ser Met Ala Val Asp Asn Lys Leu Phe Pro			
310	315	320	
aac aaa gag gct gca gca ggt tca agt gac ctt gat cct tcg atg ata			1305
Asn Lys Glu Ala Ala Gly Ser Ser Asp Leu Asp Pro Ser Met Ile			
325	330	335	
ttg gac act gga gag atc att gat aca gga tct gat tat gaa gat cag			1353
Leu Asp Thr Gly Glu Ile Ile Asp Thr Gly Ser Asp Tyr Glu Asp Gln			
340	345	350	
ggt gat gac cag tta aat gta ttt gga gag gac act atg gga ggt ttc			1401
Gly Asp Asp Gln Leu Asn Val Phe Gly Glu Asp Thr Met Gly Gly Phe			
355	360	365	
atg gaa gat ttg aga aag tgt aaa att att ttc ata att ggt ggt cct			1449
Met Glu Asp Leu Arg Lys Cys Lys Ile Ile Phe Ile Ile Gly Gly Pro			
370	375	380	385
ggc tct ggc aaa ggc aca cag tgt gaa aag ctg gtg gaa aaa tat gga			1497
Gly Ser Gly Lys Gly Thr Gln Cys Glu Lys Leu Val Glu Lys Tyr Gly			
390	395	400	
ttt aca cat ctc tca act ggc gag ctc ctg cgt gag gaa ctg gca tca			1545
Phe Thr His Leu Ser Thr Gly Glu Leu Leu Arg Glu Glu Leu Ala Ser			
405	410	415	
gaa tct gaa aga agc aaa ttg atc aga gac att atg gaa cgt gga gac			1593,
Glu Ser Glu Arg Ser Lys Leu Ile Arg Asp Ile Met Glu Arg Gly Asp			
420	425	430	
ctg gtg ccc tca ggc atc gtt ttg gag ctc ctg aag gag gcc atg gtg			1641
Leu Val Pro Ser Gly Ile Val Leu Glu Leu Leu Lys Glu Ala Met Val			

435	440	445	
gcc agc ctc ggg gac acc agg ggc ttc ctg att gac ggc tat cct cg			1689
Ala Ser Leu Gly Asp Thr Arg Gly Phe Leu Ile Asp Gly Tyr Pro Arg			
450	455	460	465
gag gtg aag caa ggg gaa gag ttc gga cgc agg att gga gac cca cag			1737
Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro Gln			
470	475	480	
ttg gtg atc tgt atg gac tgc tcg gca gac acc atg acc aac cgc ctt			1785
Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg Leu			
485	490	495	
ctc caa agg agc cgg agc agc ctg cct gtg gac gac acc acc aag acc			1833
Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys Thr			
500	505	510	
atc gcc aag cgc cta gaa gcc tac tac cga gcg tcc atc ccc gtg atc			1881
Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val Ile			
515	520	525	
gcc tac tac gag aca aaa aca cag cta cac aag ata aat gca gag gga			1929
Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu Gly			
530	535	540	545
aca cca gag gac gtt ttt ctt caa ctc tgc aca gct att gac tct att			1977
Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser Ile			
550	555	560	
att ttc tgaaggcaaa aatgcatttt tgtagaatg gaaacagaaaa aacattaaaaa			2033
Ile Phe			
agttcattcc ttaacacaat gtttcaagtt aaaccttttg tgcaccggcc cccccccaac			2093
caccacccctcc taaatcctga cagcactgtt tgcttcccag ctagacctgt gtgagaggtg			2153
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taaaatatga agatgtatag cttcccaag atgatggtaa aaccagggtt agtcatcagt			2633
aacccctctt attattatta tttttagaa acttggataa ctgtcattat ggctaagaga			2693
acaaatctga taaaattgtgt aaccttagtct cttctctaca tggtgatgca tttcagcaat			2753

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aatgggtgtc cagataagga tccattctg ggatagaatt gtatTTTta agtcatttt 3233  
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<213> Homo sapiens

<400> 42

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Asp Pro Val Glu Tyr Leu Glu Ser Cys Leu Gln Lys Val Lys Glu Leu  
35 40 45

Gly Gly Cys Asp Lys Val Lys Trp Asp Thr Phe Val Ser Gln Glu Lys  
50 55 60

Lys Thr Leu Pro Pro Leu Asn Gly Gln Ser Arg Arg Ser Phe Leu  
65 70 75 80

Arg Asn Val Met Pro Glu Asn Ser Asn Phe Pro Tyr Arg Arg Tyr Asp  
85 90 95

Arg Leu Pro Pro Ile His Gln Phe Ser Ile Glu Ser Asp Thr Asp Leu  
100 105 110

Ser Glu Thr Ala Glu Leu Ile Glu Glu Tyr Glu Val Phe Asp Pro Thr  
115 120 125

Arg Pro Arg Pro Lys Ile Ile Leu Val Ile Gly Gly Pro Gly Ser Gly  
130 135 140

Lys Gly Thr Gln Ser Leu Lys Ile Ala Glu Arg Tyr Gly Phe Gln Tyr  
145 150 155 160

Ile	Ser	Val	Gly	Glu	Leu	Leu	Arg	Lys	Lys	Ile	His	Ser	Thr	Ser	Ser
165										170					175
Asn	Arg	Lys	Trp	Ser	Leu	Ile	Ala	Lys	Ile	Ile	Thr	Thr	Gly	Glu	Leu
180									185						190
Ala	Pro	Gln	Glu	Thr	Thr	Ile	Thr	Glu	Ile	Lys	Gln	Lys	Leu	Met	Gln
195									200						205
Ile	Pro	Asp	Glu	Glu	Gly	Ile	Val	Ile	Asp	Gly	Phe	Pro	Arg	Asp	Val
210								215							220
Ala	Gln	Ala	Leu	Ser	Phe	Glu	Asp	Gln	Ile	Cys	Thr	Pro	Asp	Phe	Val
225								230							240
Val	Phe	Leu	Ala	Cys	Ala	Asn	Gln	Arg	Leu	Lys	Glu	Arg	Leu	Leu	Lys
245									250						255
Arg	Ala	Glu	Gln	Gln	Gly	Arg	Pro	Asp	Asp	Asn	Val	Lys	Ala	Thr	Gln
260								265							270
Arg	Arg	Leu	Met	Asn	Phe	Lys	Gln	Asn	Ala	Ala	Pro	Leu	Val	Lys	Tyr
275								280							285
Phe	Gln	Glu	Lys	Gly	Leu	Ile	Met	Thr	Phe	Asp	Ala	Asp	Arg	Asp	Glu
290								295							300
Asp	Glu	Val	Phe	Tyr	Asp	Ile	Ser	Met	Ala	Val	Asp	Asn	Lys	Leu	Phe
305								310							320
Pro	Asn	Lys	Glu	Ala	Ala	Ala	Gly	Ser	Ser	Asp	Leu	Asp	Pro	Ser	Met
325									330						335
Ile	Leu	Asp	Thr	Gly	Glu	Ile	Ile	Asp	Thr	Gly	Ser	Asp	Tyr	Glu	Asp
340									345						350
Gln	Gly	Asp	Asp	Gln	Leu	Asn	Val	Phe	Gly	Glu	Asp	Thr	Met	Gly	Gly
355									360						365
Phe	Met	Glu	Asp	Leu	Arg	Lys	Cys	Lys	Ile	Ile	Phe	Ile	Ile	Gly	Gly
370									375						380
Pro	Gly	Ser	Gly	Lys	Gly	Thr	Gln	Cys	Glu	Lys	Leu	Val	Glu	Lys	Tyr
385								390							400
Gly	Phe	Thr	His	Leu	Ser	Thr	Gly	Glu	Leu	Leu	Arg	Glu	Glu	Leu	Ala
405										410					415
Ser	Glu	Ser	Glu	Arg	Ser	Lys	Leu	Ile	Arg	Asp	Ile	Met	Glu	Arg	Gly
420									425						430
Asp	Leu	Val	Pro	Ser	Gly	Ile	Val	Leu	Glu	Leu	Leu	Lys	Glu	Ala	Met
435									440						445
Val	Ala	Ser	Leu	Gly	Asp	Thr	Arg	Gly	Phe	Leu	Ile	Asp	Gly	Tyr	Pro
450									455						460

Arg Glu Val Lys Gln Gly Glu Glu Phe Gly Arg Arg Ile Gly Asp Pro  
465 470 475 480

Gln Leu Val Ile Cys Met Asp Cys Ser Ala Asp Thr Met Thr Asn Arg  
485 490 495

Leu Leu Gln Arg Ser Arg Ser Ser Leu Pro Val Asp Asp Thr Thr Lys  
500 505 510

Thr Ile Ala Lys Arg Leu Glu Ala Tyr Tyr Arg Ala Ser Ile Pro Val  
515 520 525

Ile Ala Tyr Tyr Glu Thr Lys Thr Gln Leu His Lys Ile Asn Ala Glu  
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Gly Thr Pro Glu Asp Val Phe Leu Gln Leu Cys Thr Ala Ile Asp Ser  
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Ile Ile Phe

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<212> DNA

<213> Homo sapiens

<220>

<221> CDS

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<400> 43

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Met Asp Ser Ile Gly Ser Ser Gly Leu Arg Gln Gly  
1 5 10

gaa gaa acc ctg agt tgc tct gag gag ggc ttg ccc ggg ccc tca gac 158  
Glu Glu Thr Leu Ser Cys Ser Glu Glu Gly Leu Pro Gly Pro Ser Asp  
15 20 25

agc tca gag ctg gtg cag gag tgc ctg cag cag ttc aag gtg aca agg 206  
Ser Ser Glu Leu Val Gln Glu Cys Leu Gln Gln Phe Lys Val Thr Arg  
30 35 40

gca cag cta cag cag atc caa gcc agc ctc ttg ggt tcc atg gag cag 254  
Ala Gln Leu Gln Gln Ile Gln Ala Ser Leu Leu Gly Ser Met Glu Gln  
45 50 55 60

gcg ctg agg gga cag gcc agc cct gcc cct gcg gtc cgg atg ctg cct 302  
Ala Leu Arg Gly Gln Ala Ser Pro Ala Pro Ala Val Arg Met Leu Pro  
65 70 75

aca tac gtg ggg tcc acc cca cat ggc act gag caa gga gac ttc gtg 350  
Thr Tyr Val Gly Ser Thr Pro His Gly Thr Glu Gln Gly Asp Phe Val  
80 85 90

gtg ctg gag ctg ggg gcc aca ggg gcc tca ctg cgt gtt ttg tgg gtg		398	
Val Leu Glu Leu Gly Ala Thr Gly Ala Ser Leu Arg Val Leu Trp Val			
95	100	105	
act cta act ggc att gag ggg cat agg gtg gag ccc aga agc cag gag		446	
Thr Leu Thr Gly Ile Glu Gly His Arg Val Glu Pro Arg Ser Gln Glu			
110	115	120	
ttt gtg atc ccc caa gag gtg atg ctg ggt gct ggc cag cag ctc ttt		494	
Phe Val Ile Pro Gln Glu Val Met Leu Gly Ala Gly Gln Gln Leu Phe			
125	130	135	140
gac ttt gct gcc cac tgc tct gag ttc ctg gat gcg cag cct gtg		542	
Asp Phe Ala Ala His Cys Leu Ser Glu Phe Leu Asp Ala Gln Pro Val			
145	150	155	
aac aaa cag ggt ctg cag ctt ggc ttc agc ttc tct cct tgt cac		590	
Asn Lys Gln Gly Leu Gln Leu Gly Phe Ser Phe Ser Phe Pro Cys His			
160	165	170	
cag acg ggc ttg gac agg agc acc ctc att tcc tgg acc aaa ggt ttt		638	
Gln Thr Gly Leu Asp Arg Ser Thr Leu Ile Ser Trp Thr Lys Gly Phe			
175	180	185	
agg tgc agt ggt gtg gaa ggc cag gat gtg gtc cag ctg ctg aga gat		686	
Arg Cys Ser Gly Val Glu Gly Gln Asp Val Val Gln Leu Leu Arg Asp			
190	195	200	
gcc att cgg agg cag ggg gcc tac aac atc gac gtg gtt gct gtg gtg		734	
Ala Ile Arg Arg Gln Gly Ala Tyr Asn Ile Asp Val Val Ala Val Val			
205	210	215	220
aac gac aca gtg ggc acc atg atg ggc tgt gag ccg ggg gtc agg ccg		782	
Asn Asp Thr Val Gly Thr Met Met Gly Cys Glu Pro Gly Val Arg Pro			
225	230	235	
tgt gag gtt ggg cta gtt gta gac acg ggc acc aac gcg tgt tac atg		830	
Cys Glu Val Gly Leu Val Val Asp Thr Gly Thr Asn Ala Cys Tyr Met			
240	245	250	
gag gag gca cgg cat gtg gca gtg ctg gac gaa gac ccg ggg ggc cgc gtc		878	
Glu Glu Ala Arg His Val Ala Val Leu Asp Glu Asp Arg Gly Arg Val			
255	260	265	
tgc gtc agc gtc gag tgg ggc tcc tta agc gat gat ggg gcg ctg gga		926	
Cys Val Ser Val Glu Trp Gly Ser Leu Ser Asp Asp Gly Ala Leu Gly			
270	275	280	
cca gtg ctg acc acc ttc gac cat acc ctg gac cat gag tcc ctg aat		974	
Pro Val Leu Thr Thr Phe Asp His Thr Leu Asp His Glu Ser Leu Asn			
285	290	295	300
cct ggt gct cag agg ttt gag aag atg atc gga ggc ctg tac ctg ggt		1022	
Pro Gly Ala Gln Arg Phe Glu Lys Met Ile Gly Gly Leu Tyr Leu Gly			
305	310	315	
gag ctg gtg cgg ctg gtg gct cac ttg gcc ccg tgt ggg gtc ctc		1070	

Glu	Leu	Val	Arg	Leu	Val	Leu	Ala	His	Leu	Ala	Arg	Cys	Gly	Val	Leu	
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Phe	Gly	Gly	Cys	Thr	Ser	Pro	Ala	Leu	Leu	Ser	Gln	Gly	Ser	Ile	Leu	
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ctg gaa cac gtg gct gag atg gag gag tgagtcgggg agatggtggt															1165	
Leu	Glu	His	Val	Ala	Glu	Met	Glu	Glu								
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<211> 357

<212> PRT

<213> Homo sapiens

<400> 44

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Val Gln Glu Cys Leu Gln Gln Phe Lys Val Thr Arg Ala Gln Leu Gln  
35 40 45

Gln Ile Gln Ala Ser Leu Leu Gly Ser Met Glu Gln Ala Leu Arg Gly  
50 55 60

Gln Ala Ser Pro Ala Pro Ala Val Arg Met Leu Pro Thr Tyr Val Gly  
65 70 75 80

Ser Thr Pro His Gly Thr Glu Gln Gly Asp Phe Val Val Leu Glu Leu  
85 90 95

Gly Ala Thr Gly Ala Ser Leu Arg Val Leu Trp Val Thr Leu Thr Gly  
100 105 110

Ile Glu Gly His Arg Val Glu Pro Arg Ser Gln Glu Phe Val Ile Pro  
115 120 125

Gln Glu Val Met Leu Gly Ala Gly Gln Gln Leu Phe Asp Phe Ala Ala  
130 135 140

His Cys Leu Ser Glu Phe Leu Asp Ala Gln Pro Val Asn Lys Gln Gly  
145 150 155 160

Leu Gln Leu Gly Phe Ser Phe Ser Phe Pro Cys His Gln Thr Gly Leu  
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 Asp Arg Ser Thr Leu Ile Ser Trp Thr Lys Gly Phe Arg Cys Ser Gly  
                  180                 185                 190  
  
 Val Glu Gly Gln Asp Val Val Gln Leu Leu Arg Asp Ala Ile Arg Arg  
                  195                 200                 205  
  
 Gln Gly Ala Tyr Asn Ile Asp Val Val Ala Val Val Asn Asp Thr Val  
                  210                 215                 220  
  
 Gly Thr Met Met Gly Cys Glu Pro Gly Val Arg Pro Cys Glu Val Gly  
                  225                 230                 235                 240  
  
 Leu Val Val Asp Thr Gly Thr Asn Ala Cys Tyr Met Glu Glu Ala Arg  
                  245                 250                 255  
  
 His Val Ala Val Leu Asp Glu Asp Arg Gly Arg Val Cys Val Ser Val  
                  260                 265                 270  
  
 Glu Trp Gly Ser Leu Ser Asp Asp Gly Ala Leu Gly Pro Val Leu Thr  
                  275                 280                 285  
  
 Thr Phe Asp His Thr Leu Asp His Glu Ser Leu Asn Pro Gly Ala Gln  
                  290                 295                 300  
  
 Arg Phe Glu Lys Met Ile Gly Gly Leu Tyr Leu Gly Glu Leu Val Arg  
                  305                 310                 315                 320  
  
 Leu Val Leu Ala His Leu Ala Arg Cys Gly Val Leu Phe Gly Gly Cys  
                  325                 330                 335  
  
 Thr Ser Pro Ala Leu Leu Ser Gln Gly Ser Ile Leu Leu Glu His Val  
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 Ala Glu Met Glu Glu  
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   1             5                 10                 15  
  
 ggg gaa gaa acc ctg agt tgc tct gag gag ggc ttg ccc ggg ccc tca 97  
 Gly Glu Glu Thr Leu Ser Cys Ser Glu Glu Gly Leu Pro Gly Pro Ser  
   20             25                 30

gac	agc	tca	gag	ctg	gtg	cag	gag	tgc	ctg	cag	cag	ttc	aag	gtg	aca		145
Asp	Ser	Ser	Glu	Leu	Val	Gln	Glu	Cys	Leu	Gln	Gln	Phe	Lys	Val	Thr		
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agg	gca	cag	cta	cag	cag	atc	caa	gcc	agc	ctc	ttg	ggt	tcc	atg	gag		193
Arg	Ala	Gln	Leu	Gln	Gln	Ile	Gln	Ala	Ser	Leu	Leu	Gly	Ser	Met	Glu		
50															60		
cag	gcg	ctg	agg	gga	cag	gcc	agc	cct	gcc	cct	gcg	gtc	cgg	atg	ctg		241
Gln	Ala	Leu	Arg	Gly	Gln	Ala	Ser	Pro	Ala	Pro	Ala	Val	Arg	Met	Leu		
65															80		
cct	aca	tac	gtg	ggg	tcc	acc	cca	cat	ggc	act	gag	caa	gga	gac	ttc		289
Pro	Thr	Tyr	Val	Gly	Ser	Thr	Pro	His	Gly	Thr	Glu	Gln	Gly	Asp	Phe		
85															95		
gtg	gtg	ctg	gag	ctg	ggg	gcc	aca	ggg	gcc	tca	ctg	cgt	gtt	ttg	tgg		337
Val	Val	Leu	Glu	Leu	Gly	Ala	Thr	Gly	Ala	Ser	Leu	Arg	Val	Leu	Trp		
100															110		
gtg	act	cta	act	ggc	att	gag	ggg	cat	agg	gtg	gag	ccc	aga	agc	cag		385
Val	Thr	Leu	Thr	Gly	Ile	Glu	Gly	His	Arg	Val	Glu	Pro	Arg	Ser	Gln		
115															125		
gag	ttt	gtg	atc	ccc	caa	gag	gtg	atg	ctg	ggt	gct	ggc	cag	cag	ctc		433
Glu	Phe	Val	Ile	Pro	Gln	Glu	Val	Met	Leu	Gly	Ala	Gly	Gln	Gln	Leu		
130															140		
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Phe	Asp	Phe	Ala	Ala	His	Cys	Leu	Ser	Glu	Phe	Leu	Asp	Ala	Gln	Pro		
145															160		
gtg	aac	aaa	cag	ggt	ctg	cag	ctt	ggc	ttc	agc	ttc	tct	ttc	cct	tgt		529
Val	Asn	Lys	Gln	Gly	Leu	Gln	Leu	Gly	Phe	Ser	Phe	Ser	Phe	Pro	Cys		
165															175		
cac	cag	acg	ggc	ttg	gac	agg	agc	acc	ctc	att	tcc	tgg	acc	aaa	ggt		577
His	Gln	Thr	Gly	Leu	Asp	Arg	Ser	Thr	Leu	Ile	Ser	Trp	Thr	Lys	Gly		
180															190		
ttt	agg	tgc	agt	ggt	gtg	gaa	ggc	cag	gat	gtg	gtc	cag	ctg	ctg	aga		625
Phe	Arg	Cys	Ser	Gly	Val	Glu	Gly	Gln	Asp	Val	Val	Gln	Leu	Leu	Arg		
195															205		
gat	gcc	att	cg	agg	cag	ggg	gcc	tac	aac	atc	gac	gtg	gtt	gct	gtg		673
Asp	Ala	Ile	Arg	Arg	Gln	Gly	Ala	Tyr	Asn	Ile	Asp	Val	Val	Ala	Val		
210															220		
gtg	aac	gac	aca	gtg	ggc	acc	atg	atg	ggc	tgt	gag	ccg	ggg	gtc	agg		721
Val	Asn	Asp	Thr	Val	Gly	Thr	Met	Met	Gly	Cys	Glu	Pro	Gly	Val	Arg		
225															240		
ccg	tgt	gag	gtt	ggg	cta	gtt	gta	gac	acg	ggc	acc	aac	gcg	tgt	tac		769
Pro	Cys	Glu	Val	Gly	Leu	Val	Val	Asp	Thr	Gly	Thr	Asn	Ala	Cys	Tyr		
245															255		

atg gag gag gca cg	cat gtg gca gtg ctg gac gaa gac cg	gg ggc cgc	817
Met Glu Glu Ala Arg His Val Ala Val Leu Asp Glu Asp Arg Gly Arg			
260	265	270	
gtc tgc gtc agc gtc gag tgg ggc tcc ttc agc gat gat ggg gcg ctg			865
Val Cys Val Ser Val Glu Trp Gly Ser Phe Ser Asp Asp Gly Ala Leu			
275	280	285	
gga cca gtg ctg acc acc ttc gac cat acc ctg gac cat gag tcc ctg			913
Gly Pro Val Leu Thr Thr Phe Asp His Thr Leu Asp His Glu Ser Leu			
290	295	300	
aat cct ggt gct cag agg ttt gag aag atg atc gga ggc ctg tac ctg			961
Asn Pro Gly Ala Gln Arg Phe Glu Lys Met Ile Gly Gly Leu Tyr Leu			
305	310	315	320
ggt gag ctg gtg cg	ctg ctg gct cac ttg gcc cg	tgt ggg gtc	1009
Gly Glu Leu Val Arg Leu Val Ala His Leu Ala Arg Cys Gly Val			
325	330	335	
ctc ttt ggt ggc tgc acc tcc cct gcc ctg ctg agc caa ggc agc atc			1057
Leu Phe Gly Gly Cys Thr Ser Pro Ala Leu Leu Ser Gln Gly Ser Ile			
340	345	350	
ctc ctg gaa cac gtg gct gag atg gag gag gtc gac ggc			1096
Leu Leu His Val Ala Glu Met Glu Glu Val Asp Gly			
355	360	365	
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Asp Ser Ser Glu Leu Val Gln Glu Cys Leu Gln Gln Phe Lys Val Thr			
35	40	45	
Arg Ala Gln Leu Gln Gln Ile Gln Ala Ser Leu Leu Gly Ser Met Glu			
50	55	60	
Gln Ala Leu Arg Gly Gln Ala Ser Pro Ala Pro Ala Val Arg Met Leu			
65	70	75	80
Pro Thr Tyr Val Gly Ser Thr Pro His Gly Thr Glu Gln Gly Asp Phe			
85	90	95	
Val Val Leu Glu Leu Gly Ala Thr Gly Ala Ser Leu Arg Val Leu Trp			
100	105	110	
Val Thr Leu Thr Gly Ile Glu Gly His Arg Val Glu Pro Arg Ser Gln			
115	120	125	

Glu Phe Val Ile Pro Gln Glu Val Met Leu Gly Ala Gly Gln Gln Leu  
130 135 140

Phe Asp Phe Ala Ala His Cys Leu Ser Glu Phe Leu Asp Ala Gln Pro  
145 150 155 160

Val Asn Lys Gln Gly Leu Gln Leu Gly Phe Ser Phe Ser Phe Pro Cys  
165 170 175

His Gln Thr Gly Leu Asp Arg Ser Thr Leu Ile Ser Trp Thr Lys Gly  
180 185 190

Phe Arg Cys Ser Gly Val Glu Gly Gln Asp Val Val Gln Leu Leu Arg  
195 200 205

Asp Ala Ile Arg Arg Gln Gly Ala Tyr Asn Ile Asp Val Val Ala Val  
210 215 220

Val Asn Asp Thr Val Gly Thr Met Met Gly Cys Glu Pro Gly Val Arg  
225 230 235 240

Pro Cys Glu Val Gly Leu Val Val Asp Thr Gly Thr Asn Ala Cys Tyr  
245 250 255

Met Glu Glu Ala Arg His Val Ala Val Leu Asp Glu Asp Arg Gly Arg  
260 265 270

Val Cys Val Ser Val Glu Trp Gly Ser Phe Ser Asp Asp Gly Ala Leu  
275 280 285

Gly Pro Val Leu Thr Thr Phe Asp His Thr Leu Asp His Glu Ser Leu  
290 295 300

Asn Pro Gly Ala Gln Arg Phe Glu Lys Met Ile Gly Gly Leu Tyr Leu  
305 310 315 320

Gly Glu Leu Val Arg Leu Val Leu Ala His Leu Ala Arg Cys Gly Val  
325 330 335

Leu Phe Gly Gly Cys Thr Ser Pro Ala Leu Leu Ser Gln Gly Ser Ile  
340 345 350

Leu Leu Glu His Val Ala Glu Met Glu Glu Val Asp Gly  
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<211> 1096

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<400> 47

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1					5				10							
gaa	gaa	acc	ctg	agt	tgc	tct	gag	gag	ggc	ttg	ccc	ggg	ccc	tca	gac	100
Glu	Glu	Thr	Leu	Ser	Cys	Ser	Glu	Glu	Gly	Leu	Pro	Gly	Pro	Ser	Asp	
15							20				25					
agc	tca	gag	ctg	gtg	cag	gag	tgc	ctg	cag	cag	ttc	aag	gtg	aca	agg	148
Ser	Ser	Glu	Leu	Val	Gln	Glu	Cys	Leu	Gln	Gln	Phe	Lys	Val	Thr	Arg	
30							35				40					
gca	cag	cta	cag	cag	atc	caa	gcc	agc	ctc	ttg	ggt	tcc	atg	gag	cag	196
Ala	Gln	Leu	Gln	Gln	Ile	Gln	Ala	Ser	Leu	Leu	Gly	Ser	Met	Glu	Gln	
45							50				55			60		
gcg	ctg	agg	gga	cag	gcc	agc	cct	gcc	cct	gcf	gtc	cgf	atg	ctg	cct	244
Ala	Leu	Arg	Gly	Gln	Ala	Ser	Pro	Ala	Pro	Ala	Val	Arg	Met	Leu	Pro	
65							70				75					
aca	tac	gtg	ggg	tcc	acc	cca	cat	ggc	act	gag	caa	gga	gac	ttc	gtg	292
Thr	Tyr	Val	Gly	Ser	Thr	Pro	His	Gly	Thr	Glu	Gln	Gly	Asp	Phe	Val	
80							85				90					
gtg	ctg	gag	ctg	ggg	gcc	aca	ggg	gcc	tca	ctg	cgt	gtt	ttg	tgg	gtg	340
Val	Leu	Glu	Leu	Gly	Ala	Thr	Gly	Ala	Ser	Leu	Arg	Val	Leu	Trp	Val	
95							100				105					
act	cta	act	ggc	att	gag	ggg	cat	agg	gtg	gag	ccc	aga	agc	cag	gag	388
Thr	Leu	Thr	Gly	Ile	Glu	Gly	His	Arg	Val	Glu	Pro	Arg	Ser	Gln	Glu	
110							115				120					
ttt	gtg	atc	ccc	caa	gag	gtg	atg	ctg	ggt	gct	ggc	cag	cag	ctc	ttt	436
Phe	Val	Ile	Pro	Gln	Glu	Val	Met	Leu	Gly	Ala	Gly	Gln	Gln	Leu	Phe	
125							130				135			140		
gac	ttt	gct	gcc	cac	tgc	tct	gag	ttc	ctg	gat	gcf	cag	cct	gtg		484
Asp	Phe	Ala	Ala	His	Cys	Leu	Ser	Glu	Phe	Leu	Asp	Ala	Gln	Pro	Val	
145							150				155					
aac	aaa	cag	ggf	ctg	cag	ctt	ggc	ttc	agc	tcc	tct	ttc	cct	tgt	cac	532
Asn	Lys	Gln	Gly	Leu	Gln	Leu	Gly	Phe	Ser	Phe	Ser	Phe	Pro	Cys	His	
160							165				170					
cag	acg	ggc	ttg	gac	agg	agc	acc	ctc	att	tcc	tgg	acc	aaa	ggf	ttt	580
Gln	Thr	Gly	Leu	Asp	Arg	Ser	Thr	Leu	Ile	Ser	Trp	Thr	Lys	Gly	Phe	
175							180				185					
agg	tgc	agt	ggf	gtg	gaa	ggc	cag	gat	gtg	gtc	cag	ctg	ctg	aga	gat	628
Arg	Cys	Ser	Gly	Val	Glu	Gly	Gln	Asp	Val	Val	Gln	Leu	Leu	Arg	Asp	
190							195				200					
gcc	att	cgf	agg	cag	ggg	gcc	tac	aac	atc	gac	gtg	gtt	gct	gtg	gtg	676
Ala	Ile	Arg	Arg	Gln	Gly	Ala	Tyr	Asn	Ile	Asp	Val	Val	Ala	Val	Val	
205							210				215			220		
aac	gac	aca	gtg	ggc	acc	atg	atg	ggc	tgt	gag	ccg	ggg	gtc	agg	ccg	724
Asn	Asp	Thr	Val	Gly	Thr	Met	Met	Gly	Cys	Glu	Pro	Gly	Val	Arg	Pro	

225	230	235	
tgt gag gtt ggg cta gtt gta gac acg ggc acc aac gcg tgt tac atg Cys Glu Val Gly Leu Val Val Asp Thr Gly Thr Asn Ala Cys Tyr Met 240	245	250	772
gag gag gca cg <sup>g</sup> cat gtg gca gtg ctg gac gaa gac cg <sup>g</sup> ggc cg <sup>c</sup> gtc Glu Glu Ala Arg His Val Ala Val Leu Asp Glu Asp Arg Gly Arg Val 255	260	265	820
tgc gtc agc gtc gag tgg ggc tcc ttc agc gat gat ggg gc <sup>g</sup> ctg gga Cys Val Ser Val Glu Trp Gly Ser Phe Ser Asp Asp Gly Ala Leu Gly 270	275	280	868
cca gtg ctg acc acc ttc gac cat acc ctg gac cat gag tcc ctg aat Pro Val Leu Thr Thr Phe Asp His Thr Leu Asp His Glu Ser Leu Asn 285	290	295	916
cct ggt gct cag agg ttt gag aag atg atc gga ggc ctg tac ctg ggt Pro Gly Ala Gln Arg Phe Glu Lys Met Ile Gly Gly Leu Tyr Leu Gly 305	310	315	964
gag ctg gtg cg <sup>g</sup> ctg gtg gct cac ttg gcc cg <sup>g</sup> tgt ggg gtc ctc Glu Leu Val Arg Leu Val Ala His Leu Ala Arg Cys Gly Val Leu 320	325	330	1012
ttt ggt ggc tgc acc tcc cct gcc ctg ctg agc caa ggc agc atc ctc Phe Gly Gly Cys Thr Ser Pro Ala Leu Leu Ser Gln Gly Ser Ile Leu 335	340	345	1060
ctg gaa cac gtg gct gag atg gag gag gtcgacggc Leu Glu His Val Ala Glu Met Glu Glu 350	355		1096
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Ser Cys Ser Glu Glu Gly Leu Pro Gly Pro Ser Asp Ser Ser Glu Leu 20 25 30			
Val Gln Glu Cys Leu Gln Gln Phe Lys Val Thr Arg Ala Gln Leu Gln 35 40 45			
Gln Ile Gln Ala Ser Leu Leu Gly Ser Met Glu Gln Ala Leu Arg Gly 50 55 60			
Gln Ala Ser Pro Ala Pro Ala Val Arg Met Leu Pro Thr Tyr Val Gly 65 70 75 80			
Ser Thr Pro His Gly Thr Glu Gln Gly Asp Phe Val Val Leu Glu Leu 85 90 95			

Gly Ala Thr Gly Ala Ser Leu Arg Val Leu Trp Val Thr Leu Thr Gly  
                  100                       105                       110  
  
 Ile Glu Gly His Arg Val Glu Pro Arg Ser Gln Glu Phe Val Ile Pro  
                  115                       120                       125  
  
 Gln Glu Val Met Leu Gly Ala Gly Gln Gln Leu Phe Asp Phe Ala Ala  
                  130                       135                       140  
  
 His Cys Leu Ser Glu Phe Leu Asp Ala Gln Pro Val Asn Lys Gln Gly  
                  145                       150                       155                   160  
  
 Leu Gln Leu Gly Phe Ser Phe Pro Cys His Gln Thr Gly Leu  
                  165                       170                       175  
  
 Asp Arg Ser Thr Leu Ile Ser Trp Thr Lys Gly Phe Arg Cys Ser Gly  
                  180                       185                       190  
  
 Val Glu Gly Gln Asp Val Val Gln Leu Leu Arg Asp Ala Ile Arg Arg  
                  195                       200                       205  
  
 Gln Gly Ala Tyr Asn Ile Asp Val Val Ala Val Val Asn Asp Thr Val  
                  210                       215                       220  
  
 Gly Thr Met Met Gly Cys Glu Pro Gly Val Arg Pro Cys Glu Val Gly  
                  225                       230                       235                   240  
  
 Leu Val Val Asp Thr Gly Thr Asn Ala Cys Tyr Met Glu Glu Ala Arg  
                  245                       250                       255  
  
 His Val Ala Val Leu Asp Glu Asp Arg Gly Arg Val Cys Val Ser Val  
                  260                       265                       270  
  
 Glu Trp Gly Ser Phe Ser Asp Asp Gly Ala Leu Gly Pro Val Leu Thr  
                  275                       280                       285  
  
 Thr Phe Asp His Thr Leu Asp His Glu Ser Leu Asn Pro Gly Ala Gln  
                  290                       295                       300  
  
 Arg Phe Glu Lys Met Ile Gly Gly Leu Tyr Leu Gly Glu Leu Val Arg  
                  305                       310                       315                   320  
  
 Leu Val Leu Ala His Leu Ala Arg Cys Gly Val Leu Phe Gly Cys  
                  325                       330                       335  
  
 Thr Ser Pro Ala Leu Leu Ser Gln Gly Ser Ile Leu Leu Glu His Val  
                  340                       345                       350  
  
 Ala Glu Met Glu Glu  
                  355  
  
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Met	Ala	Ser	Thr	Thr	Thr	Cys	Thr	Arg	Phe	Thr	Asp	Glu	Tyr	Gln	Leu	
1	5					10					15					

ttc gag gag ctt gga aag ggg gca ttc tca gtg gtg aga aga tgt atg

Phe	Glu	Glu	Leu	Gly	Lys	Gly	Ala	Phe	Ser	Val	Val	Arg	Arg	Cys	Met	96
20						25					30					

aaa att cct act gga caa gga tat gct gcc aaa att atc aac acc aaa

Lys	Ile	Pro	Thr	Gly	Gln	Gly	Tyr	Ala	Ala	Lys	Ile	Ile	Asn	Thr	Lys	144
35						40					45					

aag ctt tct gct agg gat cat cag aaa cta gaa aga gaa gct aga atc

Lys	Leu	Ser	Ala	Arg	Asp	His	Gln	Lys	Leu	Glu	Arg	Glu	Ala	Arg	Ile	192
50						55					60					

tgc cgt ctt ttg aag cac cct aat att gtg cga ctt cat gat agc ata

Cys	Arg	Leu	Leu	Lys	His	Pro	Asn	Ile	Val	Arg	Leu	His	Asp	Ser	Ile	240
65						70					75				80	

tca gaa gag ggc ttt cac tac ttg gtg ttt gat tta gtt act gga ggt

Ser	Glu	Glu	Gly	Phe	His	Tyr	Leu	Val	Phe	Asp	Leu	Val	Thr	Gly	Gly	288
						85					90				95	

gaa ctg ttt gaa gac ata gtg gca aga gaa tac tac agt gaa gct gat

Glu	Leu	Phe	Glu	Asp	Ile	Val	Ala	Arg	Glu	Tyr	Tyr	Ser	Glu	Ala	Asp	336
100						105					110					

gcc agt cat tgt ata cag cag att cta gaa agt gtt aat cat tgt cac

Ala	Ser	His	Cys	Ile	Gln	Gln	Ile	Leu	Glu	Ser	Val	Asn	His	Cys	His	384
115						120					125					

cta aat ggc ata gtt cac agg gac ctg aag cct gag aat ttg ctt tta

Leu	Asn	Gly	Ile	Val	His	Arg	Asp	Leu	Lys	Pro	Glu	Asn	Leu	Leu	Leu	432
130						135					140					

gct agc aaa tcc aag gga gca gct gtg aaa ttg gca gac ttt ggc tta

Ala	Ser	Lys	Ser	Lys	Gly	Ala	Ala	Val	Lys	Leu	Ala	Asp	Phe	Gly	Leu	480
145						150					155				160	

gcc ata gaa gtt caa ggg gac cag cag gcg tgg ttt ggt ttt gct ggc

Ala	Ile	Glu	Val	Gln	Gly	Asp	Gln	Gln	Ala	Trp	Phe	Gly	Phe	Ala	Gly	528
165						170					175					

aca cct gga tat ctt tct cca gaa gtt tta cgt aaa gat cct tat gga

Thr	Pro	Gly	Tyr	Leu	Ser	Pro	Glu	Val	Leu	Arg	Lys	Asp	Pro	Tyr	Gly	576
180						185					190					

aag cca gtg gat atg tgg gca tgt ggt gtc att ctc tat att cta ctt

Lys	Pro	Val	Asp	Met	Trp	Ala	Cys	Gly	Val	Ile	Leu	Tyr	Ile	Leu	Leu	624
195						200					205					

gtg ggg tat cca ccc ttc tgg gat gaa gac caa cac aga ctc tat cag Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln	210                    215                    220	672
cag atc aag gct gga gct tat gat ttt cca tca cca gaa tgg gac acg Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr	225                    230                    235                    240	720
gtg act cct gaa gcc aaa gac ctc atc aat aaa atg ctt act atc aac Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn	245                    250                    255	768
cct gcc aaa cgc atc aca gcc tca gag gca ctg aag cac cca tgg atc Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile	260                    265                    270	816
tgt caa cgt tct act gtt gct tcc atg atg cac aga cag gag act gta Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val	275                    280                    285	864
gac tgc ttg aag aaa ttt aat gct aga aga aaa cta aag ggt gcc atc Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile	290                    295                    300	912
ttg aca act atg ctg gct aca agg aat ttc tca gca gcc aag agt ttg Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu	305                    310                    315                    320	960
ttg aag aaa cca gat gga gta aag ata aac aac aaa gcc aac gtg gta Leu Lys Lys Pro Asp Gly Val Lys Ile Asn Asn Lys Ala Asn Val Val	325                    330                    335	1008
acc agc ccc aaa gaa aat att cct acc cca gcg ctg gag ccc caa act Thr Ser Pro Lys Glu Asn Ile Pro Thr Pro Ala Leu Glu Pro Gln Thr	340                    345                    350	1056
act gta atc cac aac cct gat gga aac aag gag tca act gag agt tca Thr Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser	355                    360                    365	1104
aat aca aca att gag gat gaa gat gtg aaa gca cga aag caa gag att Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile	370                    375                    380	1152
atc aaa gtc act gaa caa ctg atc gaa gct atc aac aat ggg gac ttt Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe	385                    390                    395                    400	1200
gaa gcc tac aca aaa atc tgt gac cca ggc ctt act gct ttt gaa cct Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro	405                    410                    415	1248
gaa gct ttg ggt aat tta gtg gaa ggg atg gat ttt cac cga ttc tac Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr	420                    425                    430	1296
ttt gaa aat gct ttg tcc aaa agc aat aaa cca atc cac act att att		1344

Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile				
435	440	445		
ctc aac cct cat gta cat ctg gta ggg gat gat gcc gcc tgc ata gca				1392
Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala				
450	455	460		
tat att agg ctc aca cag tac atg gat ggc agt gga atg cca aag aca				1440
Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr				
465	470	475	480	
atg cag tca gaa gag act cgt gtg tgg cac cgc cg gat gga aag tgg				1488
Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp				
485	490	495		
cag aat gtt cat ttt cat cgc tcg ggg tca cca aca gta ccc atc aag				1536
Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys				
500	505	510		
cca ccc tgt att cca aat ggg aaa gaa aac ttc tca gga ggc acc tct				1584
Pro Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser				
515	520	525		
ttg tgg caa aac atc tga				1602
Leu Trp Gln Asn Ile				
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Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met				
20	25	30		
Lys Ile Pro Thr Gly Gln Gly Tyr Ala Ala Lys Ile Ile Asn Thr Lys				
35	40	45		
Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg Glu Ala Arg Ile				
50	55	60		
Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu His Asp Ser Ile				
65	70	75	80	
Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly				
85	90	95		
Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp				
100	105	110		
Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val Asn His Cys His				
115	120	125		

Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu  
 130 135 140  
 Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu  
 145 150 155 160  
 Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly  
 165 170 175  
 Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly  
 180 185 190  
 Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu  
 195 200 205  
 Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln  
 210 215 220  
 Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr  
 225 230 235 240  
 Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn  
 245 250 255  
 Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile  
 260 265 270  
 Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val  
 275 280 285  
 Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile  
 290 295 300  
 Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu  
 305 310 315 320  
 Leu Lys Lys Pro Asp Gly Val Lys Ile Asn Asn Lys Ala Asn Val Val  
 325 330 335  
 Thr Ser Pro Lys Glu Asn Ile Pro Thr Pro Ala Leu Glu Pro Gln Thr  
 340 345 350  
 Thr Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser  
 355 360 365  
 Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile  
 370 375 380  
 Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe  
 385 390 395 400  
 Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro  
 405 410 415  
 Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr  
 420 425 430

Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile  
     435                        440                        445  
  
 Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala  
     450                        455                        460  
  
 Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr  
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 Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp  
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 Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys  
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 Pro Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser  
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 gag tat cag ctt ttc gag gag ctt gga aag ggg gca ttc tca gtg gtg 97  
 Glu Tyr Gln Leu Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val  
   20              25  30  
  
 aga aga tgt atg aaa att cct act gga caa gaa tat gct gcc aaa att 145  
 Arg Arg Cys Met Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile  
   35              40  45  
  
 atc aac acc aaa aag ctt tct gct agg gat cat cag aaa cta gaa aga 193  
 Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg  
   50              55  60  
  
 gaa gct aga atc tgc cgt ctt ttg aag cac cct aat att gtg cga ctt 241  
 Glu Ala Arg Ile Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu  
   65              70  75                          80  
  
 cat gat agc ata tca gaa gag ggc ttt cac tac ttg gtg ttt gat tta 289  
 His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu  
   85              90  95  
  
 gtt act gga ggt gaa ctg ttt gaa gac ata gtg gca aga gaa tac tac 337  
 Val Thr Gly Gly Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr

100	105	110	
agt gaa gct gat gcc agt cat tgt ata cag cag att cta gaa agt gtt Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val 115	120	125	385
aat cat tgt cac cta aat ggc ata gtt cac agg gac ctg aag cct gag Asn His Cys His Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu 130	135	140	433
aat ttg ctt tta gct agc aaa tcc aag gga gca gct gtg aaa ttg gca Asn Leu Leu Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala 145	150	155	481
gac ttt ggc tta gcc ata gaa gtt caa ggg gac cag cag gcg tgg ttt Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe 165	170	175	529
ggt ttt gct ggc aca cct gga tat ctt tct cca gaa gtt tta cgt aaa Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys 180	185	190	577
gat cct tat gga aag cca gtg gat atg tgg gca tgt ggt gtc att ctc Asp Pro Tyr Gly Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu 195	200	205	625
tat att cta ctt gtg ggg tat cca ccc ttc tgg gat gaa gac caa cac Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His 210	215	220	673
aga ctc tat cag cag atc aag gct gga gct tat gat ttt cca tca cca Arg Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro 225	230	235	721
gaa tgg gac acg gtg act cct gaa gcc aaa gac ctc atc aat aaa atg Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met 245	250	255	769
ctt act atc aac cct gcc aaa cgc atc aca gcc tca gag gca ctg aag Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys 260	265	270	817
cac cca tgg atc tgt caa cgt tct act gtt gct tcc atg atg cac aga His Pro Trp Ile Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg 275	280	285	865
cag gag act gta gac tgc ttg aag aaa ttt aat gct aga aga aaa cta Gln Glu Thr Val Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu 290	295	300	913
aag ggt gcc atc ttg aca act atg ctg gct aca agg aat ttc tca gca Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala 305	310	315	961
gcc aag agt ttg ttg aag aaa cca gat gga gta aag gag tca act gag Ala Lys Ser Leu Leu Lys Lys Pro Asp Gly Val Lys Glu Ser Thr Glu 325	330	335	1009

agt tca aat aca aca att gag gat gaa gat gtg aaa gca cga aag caa		1057	
Ser Ser Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln			
340	345	350	
gag att atc aaa gtc act gaa caa ctg atc gaa gct atc aac aat ggg		1105	
Glu Ile Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly			
355	360	365	
gac ttt gaa gcc tac aca aaa atc tgt gac cca ggc ctt act gct ttt		1153	
Asp Phe Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe			
370	375	380	
gaa cct gaa gct ttg ggt aat tta gtg gaa ggg atg gat ttt cac cga		1201	
Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg			
385	390	395	400
tcc tac ttt gaa aat gct ttg tcc aaa agc aat aaa cca atc cac act		1249	
Phe Tyr Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr			
405	410	415	
att att cta aac cct cat gta cat ctg gta ggg gat gat gcc gcc tgc		1297	
Ile Ile Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys			
420	425	430	
ata gca tat att agg ctc aca cag tac atg gat ggc agt gga atg cca		1345	
Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro			
435	440	445	
aag aca atg cag tca gaa gag act cgt gtg tgg cac cgc cg gat gga		1393	
Lys Thr Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly			
450	455	460	
aag tgg cag aat gtt cat ttt cat cgc tcg ggg tca cca aca gta ccc		1441	
Lys Trp Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro			
465	470	475	480
atc aag cca ccc tgt att cca aat ggg aaa gaa aac ttc tca gga ggc		1489	
Ile Lys Pro Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly			
485	490	495	
acc tct ttg tgg caa aac atc ctc gag ggc		1519	
Thr Ser Leu Trp Gln Asn Ile Leu Glu Gly			
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Arg Arg Cys Met Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile  
     35                        40                        45  
  
 Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg  
     50                        55                        60  
  
 Glu Ala Arg Ile Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu  
     65                        70                        75                        80  
  
 His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu  
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 Val Thr Gly Gly Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr  
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 Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val  
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 Asn His Cys His Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu  
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 Asn Leu Leu Leu Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala  
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 Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe  
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 Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys  
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 Asp Pro Tyr Gly Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu  
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 Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His  
     210                       215                       220  
  
 Arg Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro  
     225                       230                       235                       240  
  
 Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met  
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 Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys  
     260                       265                       270  
  
 His Pro Trp Ile Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg  
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 Gln Glu Thr Val Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu  
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 Ala Lys Ser Leu Leu Lys Lys Pro Asp Gly Val Lys Glu Ser Thr Glu  
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Ser Ser Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln  
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 355 360 365  
 Asp Phe Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe  
 370 375 380  
 Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg  
 385 390 395 400  
 Phe Tyr Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr  
 405 410 415  
 Ile Ile Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys  
 420 425 430  
 Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro  
 435 440 445  
 Lys Thr Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly  
 450 455 460  
 Lys Trp Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro  
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 Glu Tyr Gln Leu Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val  
 20 25 30  
 aga aga tgt atg aaa att cct act gga caa gaa tat gct gcc aaa att 145  
 Arg Arg Cys Met Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile  
 35 40 45  
 atc aac acc aaa aag ctt tct gct agg gat cat cag aaa cta gaa aga 193  
 Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg

50	55	60	
gaa gct aga atc tgc cgt ctt ttg aag cac cct aat att gtg cga ctt Glu Ala Arg Ile Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu	65	70	80
cat gat agc ata tca gaa gag ggc ttt cac tac ttg gtg ttt gat tta His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu	85	90	95
gtt act gga ggt gaa ctg ttt gaa gac ata gtg gca aga gaa tac tac Val Thr Gly Gly Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr	100	105	110
agt gaa gct gat gcc agt cat tgt ata cag cag att cta gaa agt gtt Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val	115	120	125
aat cat tgt cac cta aat ggc ata gtt cac agg gac ctg aag cct gag Asn His Cys His Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu	130	135	140
aat ttg ctt tta gct agc aaa tcc aag gga gca gct gtg aaa ttg gca Asn Leu Leu Ala Ser Lys Ser Gly Ala Ala Val Lys Leu Ala	145	150	155
gac ttt ggc tta gcc ata gaa gtt caa ggg gac cag cag gcg tgg ttt Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe	165	170	175
ggt ttt gct ggc aca cct gga tat ctt tct cca gaa gtt tta cgt aaa Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys	180	185	190
gat cct tat gga aag cca gtg gat atg tgg gca tgt ggt gtc att ctc Asp Pro Tyr Gly Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu	195	200	205
tat att cta ctt gtg ggg tat cca ccc ttc tgg gat gaa gac caa cac Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His	210	215	220
aga ctc tat cag cag atc aag gct gga gct tat gat ttt cca tca cca Arg Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro	225	230	235
gaa tgg gac acg gtg act cct gaa gcc aaa gac ctc atc aat aaa atg Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met	245	250	255
ctt act atc aac cct gcc aaa cgc atc aca gcc tca gag gca ctg aag Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys	260	265	270
cac cca tgg atc tgt caa cgt tct act gtt gct tcc atg atg cac aga His Pro Trp Ile Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg	275	280	285

cag gag act gta gac tgc ttg aag aaa ttt aat gct aga aga aaa cta	913
Gln Glu Thr Val Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu	
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aag ggt gcc atc ttg aca act atg ctg gct aca agg aat ttc tca gca	961
Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala	
305 310 315 320	
gcc aag agt ttg ttg aag aaa cca gat gga gta aag gag ccc caa act	1009
Ala Lys Ser Leu Leu Lys Lys Pro Asp Gly Val Lys Glu Pro Gln Thr	
325 330 335	
act gta atc cac aac cct gat gga aac aag gag tca act gag agt tca	1057
Thr Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser	
340 345 350	
aat aca aca att gag gat gaa gat gtg aaa gca cga aag caa gag att	1105
Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile	
355 360 365	
atc aaa gtc act gaa caa ctg atc gaa gct atc aac aat ggg gac ttt	1153
Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe	
370 375 380	
gaa gcc tac aca aaa atc tgt gac cca ggc ctt act gct ttt gaa cct	1201
Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro	
385 390 395 400	
gaa gct ttg ggt aat tta gtg gaa ggg atg gat ttt cac cga ttc tac	1249
Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr	
405 410 415	
ttt gaa aat gct ttg tcc aaa agc aat aaa cca atc cac act att att	1297
Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile	
420 425 430	
cta aac cct cat gta cat ctg gta ggg gat gat gcc gcc tgc ata gca	1345
Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala	
435 440 445	
tat att agg ctc aca cag tac atg gat ggc agt gga atg cca aag aca	1393
Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr	
450 455 460	
atg cag tca gaa gag act cgt gtg tgg cac cgc cgg gat gga aag tgg	1441
Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp	
465 470 475 480	
cag aat gtt cat ttt cat cgc tcg ggg tca cca aca gta ccc atc aag	1489
Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys	
485 490 495	
cca ccc tgt att cca aat ggg aaa gaa aac ttc tca gga ggc acc tct	1537
Pro Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser	
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Arg Arg Cys Met Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile		
35	40	45
Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg		
50	55	60
Glu Ala Arg Ile Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu		
65	70	75
80		
His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu		
85	90	95
Val Thr Gly Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr		
100	105	110
Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val		
115	120	125
Asn His Cys His Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu		
130	135	140
Asn Leu Leu Leu Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala		
145	150	155
160		
Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe		
165	170	175
Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys		
180	185	190
Asp Pro Tyr Gly Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu		
195	200	205
Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His		
210	215	220
Arg Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro		
225	230	235
240		
Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met		
245	250	255

Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys  
                  260                 265                 270  
  
 His Pro Trp Ile Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg  
                  275                 280                 285  
  
 Gln Glu Thr Val Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu  
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 Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala  
                  305                 310                 315                 320  
  
 Ala Lys Ser Leu Leu Lys Lys Pro Asp Gly Val Lys Glu Pro Gln Thr  
                  325                 330                 335  
  
 Thr Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser  
                  340                 345                 350  
  
 Asn Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile  
                  355                 360                 365  
  
 Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe  
                  370                 375                 380  
  
 Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro  
                  385                 390                 395                 400  
  
 Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr  
                  405                 410                 415  
  
 Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile  
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 Leu Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala  
                  435                 440                 445  
  
 Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr  
                  450                 455                 460  
  
 Met Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp  
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 Gln Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys  
                  485                 490                 495  
  
 Pro Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser  
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Glu Tyr Gln Leu Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val				
20	25	30		
aga aga tgt atg aaa att cct act gga caa gaa tat gct gcc aaa att				145
Arg Arg Cys Met Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile				
35	40	45		
atc aac acc aaa aag ctt tct gct agg gat cat cag aaa cta gaa aga				193
Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg				
50	55	60		
gaa gct aga atc tgc cgt ctt ttg aag cac cct aat att gtg cga ctt				241
Glu Ala Arg Ile Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu				
65	70	75	80	
cat gat agc ata tca gaa gag ggc ttt cac tac ttg gtg ttt gat tta				289
His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu				
85	90	95		
gtt act gga ggt gaa ctg ttt gaa gac ata gtg gca aga gaa tac tac				337
Val Thr Gly Gly Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr				
100	105	110		
agt gaa gct gat gcc agt cat tgt ata cag cag att cta gaa agt gtt				385
Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val				
115	120	125		
aat cat tgt cac cta aat ggc ata gtt cac agg gac ctg aag cct gag				433
Asn His Cys His Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu				
130	135	140		
aat ttg ctt tta gct agc aaa tcc aag gga gca gct gtg aaa ttg gca				481
Asn Leu Leu Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala				
145	150	155	160	
gac ttt ggc tta gcc ata gaa gtt caa ggg gac cag cag gcg tgg ttt				529
Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe				
165	170	175		
ggt ttt gct ggc aca cct gga tat ctt tct cca gaa gtt tta cgt aaa				577
Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys				
180	185	190		
gat cct tat gga aag cca gtg gat atg tgg gca tgt ggt gtc att ctc				625
Asp Pro Tyr Gly Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu				
195	200	205		

tat att cta ctt gtg ggg tat cca ccc ttc tgg gat gaa gac caa cac Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His 210 215 220	673
aga ctc tat cag cag atc aag gct gga gct tat gat ttt cca tca cca Arg Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro 225 230 235 240	721
gaa tgg gac acg gtg act cct gaa gcc aaa gac ctc atc aat aaa atg Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met 245 250 255	769
ctt act atc aac cct gcc aaa cgc atc aca gcc tca gag gca ctg aag Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys 260 265 270	817
cac cca tgg atc tgt caa cgt tct act gtt gct tcc atg atg cac aga His Pro Trp Ile Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg 275 280 285	865
cag gag act gta gac tgc ttg aag aaa ttt aat gct aga aga aaa cta Gln Glu Thr Val Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu 290 295 300	913
aag ggt gcc atc ttg aca act atg ctg gct aca agg aat ttc tca gcc Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala 305 310 315 320	961
aag agt ttg ttg aag aaa cca gat gga gta aag gag ccc caa act act Lys Ser Leu Leu Lys Pro Asp Gly Val Lys Glu Pro Gln Thr Thr 325 330 335	1009
gta atc cac aac cct gat gga aac aag gag tca act gag agt tca aat Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser Asn 340 345 350	1057
aca aca att gag gat gaa gat gtg aaa gca cga aag caa gag att atc Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile 355 360 365	1105
aaa gtc act gaa caa ctg atc gaa gct atc aac aat ggg gac ttt gaa Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu 370 375 380	1153
gcc tac aca aaa atc tgt gac cca ggc ctt act gct ttt gaa cct gaa Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu 385 390 395 400	1201
gct ttg ggt aat tta gtg gaa ggg atg gat ttt cac cga ttc tac ttt Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe 405 410 415	1249
gaa aat gct ttg tcc aaa agc aat aaa cca atc cac act att att cta Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu 420 425 430	1297
aac cct cat gta cat ctg gta ggg gat gat gcc gcc tgc ata gca tat	1345

Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr			
435	440	445	
att agg ctc aca cag tac atg gat ggc agt gga atg cca aag aca atg			1393
Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met			
450	455	460	
cag tca gaa gag act cgt gtg tgg cac cgc cg <sup>g</sup> gat gga aag tgg cag			1441
Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln			
465	470	475	480
aat gtt cat ttt cat cgc tcg ggg tca cca aca gta ccc atc aag cca			1489
Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys Pro			
485	490	495	
ccc tgt att cca aat ggg aaa gaa aac ttc tca gga ggc acc tct ttg			1537
Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe Ser Gly Gly Thr Ser Leu			
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tgg caa aac atc ctc gag ggc			1558
Trp Gln Asn Ile Leu Glu Gly			
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Glu Tyr Gln Leu Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val			
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Arg Arg Cys Met Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile			
35	40	45	
Ile Asn Thr Lys Lys Leu Ser Ala Arg Asp His Gln Lys Leu Glu Arg			
50	55	60	
Glu Ala Arg Ile Cys Arg Leu Leu Lys His Pro Asn Ile Val Arg Leu			
65	70	75	80
His Asp Ser Ile Ser Glu Glu Gly Phe His Tyr Leu Val Phe Asp Leu			
85	90	95	
Val Thr Gly Gly Glu Leu Phe Glu Asp Ile Val Ala Arg Glu Tyr Tyr			
100	105	110	
Ser Glu Ala Asp Ala Ser His Cys Ile Gln Gln Ile Leu Glu Ser Val			
115	120	125	
Asn His Cys His Leu Asn Gly Ile Val His Arg Asp Leu Lys Pro Glu			
130	135	140	
Asn Leu Leu Leu Ala Ser Lys Ser Lys Gly Ala Ala Val Lys Leu Ala			

145	150	155	160
Asp Phe Gly Leu Ala Ile Glu Val Gln Gly Asp Gln Gln Ala Trp Phe			
165	170	175	
Gly Phe Ala Gly Thr Pro Gly Tyr Leu Ser Pro Glu Val Leu Arg Lys			
180	185	190	
Asp Pro Tyr Gly Lys Pro Val Asp Met Trp Ala Cys Gly Val Ile Leu			
195	200	205	
Tyr Ile Leu Leu Val Gly Tyr Pro Pro Phe Trp Asp Glu Asp Gln His			
210	215	220	
Arg Leu Tyr Gln Gln Ile Lys Ala Gly Ala Tyr Asp Phe Pro Ser Pro			
225	230	235	240
Glu Trp Asp Thr Val Thr Pro Glu Ala Lys Asp Leu Ile Asn Lys Met			
245	250	255	
Leu Thr Ile Asn Pro Ala Lys Arg Ile Thr Ala Ser Glu Ala Leu Lys			
260	265	270	
His Pro Trp Ile Cys Gln Arg Ser Thr Val Ala Ser Met Met His Arg			
275	280	285	
Gln Glu Thr Val Asp Cys Leu Lys Lys Phe Asn Ala Arg Arg Lys Leu			
290	295	300	
Lys Gly Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser Ala			
305	310	315	320
Lys Ser Leu Leu Lys Lys Pro Asp Gly Val Lys Glu Pro Gln Thr Thr			
325	330	335	
Val Ile His Asn Pro Asp Gly Asn Lys Glu Ser Thr Glu Ser Ser Asn			
340	345	350	
Thr Thr Ile Glu Asp Glu Asp Val Lys Ala Arg Lys Gln Glu Ile Ile			
355	360	365	
Lys Val Thr Glu Gln Leu Ile Glu Ala Ile Asn Asn Gly Asp Phe Glu			
370	375	380	
Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu Thr Ala Phe Glu Pro Glu			
385	390	395	400
Ala Leu Gly Asn Leu Val Glu Gly Met Asp Phe His Arg Phe Tyr Phe			
405	410	415	
Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro Ile His Thr Ile Ile Leu			
420	425	430	
Asn Pro His Val His Leu Val Gly Asp Asp Ala Ala Cys Ile Ala Tyr			
435	440	445	
Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser Gly Met Pro Lys Thr Met			

450	455	460	
Gln Ser Glu Glu Thr Arg Val Trp His Arg Arg Asp Gly Lys Trp Gln			
465	470	475	480
Asn Val His Phe His Arg Ser Gly Ser Pro Thr Val Pro Ile Lys Pro			
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gga ggc aat aca ttc tca aaa act gaa acc agc gcc agt gca cac tgt			95
Gly Gly Asn Thr Phe Ser Lys Thr Glu Thr Ser Ala Ser Ala His Cys			
20	25	30	
cct gtg tac gtg ccg gat ccc aca tcc acc atc aag ccg ggg cct aat			143
Pro Val Tyr Val Pro Asp Pro Thr Ser Thr Ile Lys Pro Gly Pro Asn			
35	40	45	
agc cac aac agc aac aca cca gga atc agg gag gca ggc tct gag gac			191
Ser His Asn Ser Asn Thr Pro Gly Ile Arg Glu Ala Gly Ser Glu Asp			
50	55	60	
atc atc gtg gtt gcc ctg tac gat tac gag gcc att cac cac gaa gac			239
Ile Ile Val Val Ala Leu Tyr Asp Tyr Glu Ala Ile His His Glu Asp			
65	70	75	
ctc agc ttc cag aag ggg gac cag atg gtg gtc cta gag gaa tcc ggg			287
Leu Ser Phe Gln Lys Gly Asp Gln Met Val Val Leu Glu Glu Ser Gly			
80	85	90	95
gag tgg tgg aag gct cga tcc ctg gcc acc cgg aag gag ggc tac atc			335
Glu Trp Trp Lys Ala Arg Ser Leu Ala Thr Arg Lys Glu Gly Tyr Ile			
100	105	110	
cca agc aac tat gtc gcc cgc gtt gac tct ctg gag aca gag gag tgg			383
Pro Ser Asn Tyr Val Ala Arg Val Asp Ser Leu Glu Thr Glu Glu Trp			
115	120	125	
ttt ttc aag ggc atc agc cgg aag gac gca gag cgc caa ctg ctg gct			431

Phe	Phe	Lys	Gly	Ile	Ser	Arg	Lys	Asp	Ala	Glu	Arg	Gln	Leu	Leu	Ala		
130						135					140						
ccc	ggc	aac	atg	ctg	ggc	tcc	ttc	atg	atc	cgg	gat	agc	gag	acc	act	479	
Pro	Gly	Asn	Met	Leu	Gly	Ser	Phe	Met	Ile	Arg	Asp	Ser	Glu	Thr	Thr		
145						150					155						
aaa	gga	agg	acg	tac	tct	ttg	tcc	gtg	cga	gac	tac	gac	cct	cgg	cag	gga	527
Lys	Gly	Ser	Tyr	Ser	Leu	Ser	Val	Arg	Asp	Tyr	Asp	Pro	Arg	Gln	Gly		
160						165				170					175		
gat	acc	gtg	aaa	cat	tac	aag	atc	cgg	acc	ctg	gac	aac	ggg	ggc	ttc	575	
Asp	Thr	Val	Lys	His	Tyr	Lys	Ile	Arg	Thr	Leu	Asp	Asn	Gly	Gly	Phe		
							180			185				190			
tac	ata	tcc	ccc	cga	agc	acc	ttc	agc	act	ctg	cag	gag	ctg	gtg	gac	623	
Tyr	Ile	Ser	Pro	Arg	Ser	Thr	Phe	Ser	Thr	Leu	Gln	Glu	Leu	Val	Asp		
							195			200				205			
cac	tac	aag	acc	acc	tac	aac	aag	cac	acc	aag	gtg	gca	gtg	aag	acg	671	
His	Tyr	Lys	Thr	Thr	Tyr	Asn	Lys	His	Thr	Lys	Val	Ala	Val	Lys	Thr		
							210			215				220			
atg	aag	cca	ggg	agc	atg	tcg	gtg	gag	gcc	ttc	ctg	gca	gag	gcc	aac	719	
Met	Lys	Pro	Gly	Ser	Met	Ser	Val	Glu	Ala	Phe	Leu	Ala	Glu	Ala	Asn		
							225			230				235			
gtg	atg	aaa	act	ctg	cag	cat	gac	aag	ctg	gtc	aaa	ctt	cat	gcg	gtg	767	
Val	Met	Lys	Thr	Leu	Gln	His	Asp	Lys	Leu	Val	Lys	Leu	His	Ala	Val		
							240			245				250		255	
gtc	acc	aag	gag	ccc	atc	tac	atc	acg	gag	ttc	atg	gcc	aaa	gga		815	
Val	Thr	Lys	Glu	Pro	Ile	Tyr	Ile	Ile	Thr	Glu	Phe	Met	Ala	Lys	Gly		
							260			265				270			
agc	ttg	ctg	gac	ttt	ctg	aaa	agt	gat	gag	ggc	agc	aag	cag	cca	ttg	863	
Ser	Leu	Leu	Asp	Phe	Leu	Lys	Ser	Asp	Glu	Gly	Ser	Lys	Gln	Pro	Leu		
							275			280				285			
cca	aaa	ctc	att	gac	ttc	tca	gcc	cag	att	gca	gaa	ggc	atg	gcc	ttc	911	
Pro	Lys	Leu	Ile	Asp	Phe	Ser	Ala	Gln	Ile	Ala	Glu	Gly	Met	Ala	Phe		
							290			295				300			
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Ile	Glu	Gln	Arg	Asn	Tyr	Ile	His	Arg	Asp	Leu	Arg	Ala	Ala	Asn	Ile		
							305			310				315			
ttg	gtc	tct	gca	tcc	ctg	gtg	tgt	aag	att	gct	gac	ttt	ggc	ctg	gcc	1007	
Leu	Val	Ser	Ala	Ser	Leu	Val	Cys	Lys	Ile	Ala	Asp	Phe	Gly	Leu	Ala		
							320			325				330		335	
cgg	gtc	att	gag	gac	aac	gag	tac	acg	gct	cgg	gaa	ggg	gcc	aag	ttc	1055	
Arg	Val	Ile	Glu	Asp	Asn	Glu	Tyr	Thr	Ala	Arg	Glu	Gly	Ala	Lys	Phe		
							340			345				350			
ccc	atc	aag	tgg	aca	gct	cct	gaa	gcc	atc	aac	ttt	ggc	tcc	ttc	acc	1103	
Pro	Ile	Lys	Trp	Thr	Ala	Pro	Glu	Ala	Ile	Asn	Phe	Gly	Ser	Phe	Thr		

355	360	365	
atc aag tca gac gtc tgg tcc ttt ggt atc ctg ctg atg gag atc gtc Ile Lys Ser Asp Val Trp Ser Phe Gly Ile Leu Leu Met Glu Ile Val 370	375	380	1151
acc tac ggc cgg atc cct tac cca ggg atg tca aac cct gaa gtg atc Thr Tyr Gly Arg Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu Val Ile 385	390	395	1199
cga gct ctg gag cgt gga tac cgg atg cct cgc cca gag aac tgc cca Arg Ala Leu Glu Arg Gly Tyr Arg Met Pro Arg Pro Glu Asn Cys Pro 400	405	410	1247
gag gag ctc tac aac atc atg atg cgc tgc tgg aaa aac cgt ccg gag Glu Glu Leu Tyr Asn Ile Met Met Arg Cys Trp Lys Asn Arg Pro Glu 420	425	430	1295
gag cgg ccg acc ttc gaa tac atc cag agt gtg ctg gat gac ttc tac Glu Arg Pro Thr Phe Glu Tyr Ile Gln Ser Val Leu Asp Asp Phe Tyr 435	440	445	1343
acg gcc aca gag agc cag tac caa cag cag cca tgaggcccg ctat Thr Ala Thr Glu Ser Gln Tyr Gln Gln Gln Pro 450	455		1390
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Val Tyr Val Pro Asp Pro Thr Ser Thr Ile Lys Pro Gly Pro Asn Ser 35 40 45			
His Asn Ser Asn Thr Pro Gly Ile Arg Glu Ala Gly Ser Glu Asp Ile 50 55 60			
Ile Val Val Ala Leu Tyr Asp Tyr Glu Ala Ile His His Glu Asp Leu 65 70 75 80			
Ser Phe Gln Lys Gly Asp Gln Met Val Val Leu Glu Ser Gly Glu 85 90 95			
Trp Trp Lys Ala Arg Ser Leu Ala Thr Arg Lys Glu Gly Tyr Ile Pro 100 105 110			
Ser Asn Tyr Val Ala Arg Val Asp Ser Leu Glu Thr Glu Glu Trp Phe 115 120 125			
Phe Lys Gly Ile Ser Arg Lys Asp Ala Glu Arg Gln Leu Leu Ala Pro			

130	135	140
Gly Asn Met Leu Gly Ser Phe Met Ile Arg Asp Ser Glu Thr Thr Lys		
145	150	155
Gly Ser Tyr Ser Leu Ser Val Arg Asp Tyr Asp Pro Arg Gln Gly Asp		
165	170	175
Thr Val Lys His Tyr Lys Ile Arg Thr Leu Asp Asn Gly Gly Phe Tyr		
180	185	190
Ile Ser Pro Arg Ser Thr Phe Ser Thr Leu Gln Glu Leu Val Asp His		
195	200	205
Tyr Lys Thr Thr Tyr Asn Lys His Thr Lys Val Ala Val Lys Thr Met		
210	215	220
Lys Pro Gly Ser Met Ser Val Glu Ala Phe Leu Ala Glu Ala Asn Val		
225	230	235
Met Lys Thr Leu Gln His Asp Lys Leu Val Lys Leu His Ala Val Val		
245	250	255
Thr Lys Glu Pro Ile Tyr Ile Ile Thr Glu Phe Met Ala Lys Gly Ser		
260	265	270
Leu Leu Asp Phe Leu Lys Ser Asp Glu Gly Ser Lys Gln Pro Leu Pro		
275	280	285
Lys Leu Ile Asp Phe Ser Ala Gln Ile Ala Glu Gly Met Ala Phe Ile		
290	295	300
Glu Gln Arg Asn Tyr Ile His Arg Asp Leu Arg Ala Ala Asn Ile Leu		
305	310	315
Val Ser Ala Ser Leu Val Cys Lys Ile Ala Asp Phe Gly Leu Ala Arg		
325	330	335
Val Ile Glu Asp Asn Glu Tyr Thr Ala Arg Glu Gly Ala Lys Phe Pro		
340	345	350
Ile Lys Trp Thr Ala Pro Glu Ala Ile Asn Phe Gly Ser Phe Thr Ile		
355	360	365
Lys Ser Asp Val Trp Ser Phe Gly Ile Leu Leu Met Glu Ile Val Thr		
370	375	380
Tyr Gly Arg Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu Val Ile Arg		
385	390	395
Ala Leu Glu Arg Gly Tyr Arg Met Pro Arg Pro Glu Asn Cys Pro Glu		
405	410	415
Glu Leu Tyr Asn Ile Met Met Arg Cys Trp Lys Asn Arg Pro Glu Glu		
420	425	430
Arg Pro Thr Phe Glu Tyr Ile Gln Ser Val Leu Asp Asp Phe Tyr Thr		

435

440

445

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 Met Gly Cys Met Lys Ser Lys Phe Leu Gln Val Gly  
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 Gly Asn Thr Phe Ser Lys Thr Glu Thr Ser Ala Ser Pro His Cys Pro  
 15              20              25  
 gtg tac gtg ccg gat ccc aca tcc acc atc aag ccg ggg cct aat agc 207  
 Val Tyr Val Pro Asp Pro Thr Ser Thr Ile Lys Pro Gly Pro Asn Ser  
 30              35              40  
 cac aac agc aac aca cca gga atc agg gag gca ggc tct gag gac atc 255  
 His Asn Ser Asn Thr Pro Gly Ile Arg Glu Ala Gly Ser Glu Asp Ile  
 45              50              55              60  
 atc gtg gtt gcc ctg tat gat tac gag gcc att cac cac gaa gac ctc 303  
 Ile Val Val Ala Leu Tyr Asp Tyr Glu Ala Ile His His Glu Asp Leu  
 65              70              75  
 agc ttc cag aag ggg gac cag atg gtg gtc cta gag gaa tcc ggg gag 351  
 Ser Phe Gln Lys Gly Asp Gln Met Val Val Leu Glu Glu Ser Gly Glu  
 80              85              90  
 tgg tgg aag gct cga tcc ctg gcc acc cgg aag gag ggc tac atc cca 399  
 Trp Trp Lys Ala Arg Ser Leu Ala Thr Arg Lys Glu Gly Tyr Ile Pro  
 95              100              105  
 agc aac tat gtc gcc cgc gtt gac tct ctg gag aca gag gag tgg ttt 447  
 Ser Asn Tyr Val Ala Arg Val Asp Ser Leu Glu Thr Glu Glu Trp Phe  
 110              115              120  
 ttc aag ggc atc agc cgg aag gac gca gag cgc caa ctg ctg gct ccc 495  
 Phe Lys Gly Ile Ser Arg Lys Asp Ala Glu Arg Gln Leu Leu Ala Pro  
 125              130              135              140  
 ggc aac atg ctg ggc tcc ttc atg atc cgg gat agc gag acc act aaa 543  
 Gly Asn Met Leu Gly Ser Phe Met Ile Arg Asp Ser Glu Thr Thr Lys  
 145              150              155

gga agc tac tct ttg tcc gtg cga gac tac gac cct cgg cag gga gat Gly Ser Tyr Ser Leu Ser Val Arg Asp Tyr Asp Pro Arg Gln Gly Asp	160                    165                    170	591
acc gtg aaa cat tac aag atc cgg acc ctg gac aac ggg ggc ttc tac Thr Val Lys His Tyr Lys Ile Arg Thr Leu Asp Asn Gly Gly Phe Tyr	175                    180                    185	639
ata tcc ccc cga agc acc ttc agc act ctg cag gag ctg gtg gac cac Ile Ser Pro Arg Ser Thr Phe Ser Thr Leu Gln Glu Leu Val Asp His	190                    195                    200	687
tac aag aag ggg aac gac ggg ctc tgc cag aaa ctg tcg gtg ccc tgc Tyr Lys Lys Gly Asn Asp Gly Leu Cys Gln Lys Leu Ser Val Pro Cys	205                    210                    215                    220	735
atg tct tcc aag ccc cag aag cct tgg gag aaa gat gcc tgg gag atc Met Ser Ser Lys Pro Gln Lys Pro Trp Glu Lys Asp Ala Trp Glu Ile	225                    230                    235	783
cct cgg gaa tcc ctc aag ctg gag aag aaa ctt gga gct ggg cag ttt Pro Arg Glu Ser Leu Lys Leu Glu Lys Lys Leu Gly Ala Gln Phe	240                    245                    250	831
ggg gaa gtc tgg atg gcc acc tac aac aag cac acc aag gtg gca gtg Gly Glu Val Trp Met Ala Thr Tyr Asn Lys His Thr Lys Val Ala Val	255                    260                    265	879
aag acg atg aag cca ggg agc atg tcg gtg gag gcc ttc ctg gca gag Lys Thr Met Lys Pro Gly Ser Met Ser Val Glu Ala Phe Leu Ala Glu	270                    275                    280	927
gcc aac gtg atg aaa act ctg cag cat gac aag ctg gtc aaa ctt cat Ala Asn Val Met Lys Thr Leu Gln His Asp Lys Leu Val Lys Leu His	285                    290                    295                    300	975
gcg gtg gtc acc aag gag ccc atc tac atc atc acg gag ttc atg gcc Ala Val Val Thr Lys Glu Pro Ile Tyr Ile Ile Thr Glu Phe Met Ala	305                    310                    315	1023
aaa gga agc ttg ctg gac ttt ctg aaa agt gat gag ggc agc aag cag Lys Gly Ser Leu Leu Asp Phe Leu Lys Ser Asp Glu Gly Ser Lys Gln	320                    325                    330	1071
cca ttg cca aaa ctc att gac ttc tca gcc cag att gca gaa ggc atg Pro Leu Pro Lys Leu Ile Asp Phe Ser Ala Gln Ile Ala Glu Gly Met	335                    340                    345	1119
gcc ttc atc gag cag agg aac tac atc cac cga gac ctc cga gct gcc Ala Phe Ile Glu Gln Arg Asn Tyr Ile His Arg Asp Leu Arg Ala Ala	350                    355                    360	1167
aac atc ttg gtc tct gca tcc ctg gtg tgt aag att gct gac ttt ggc Asn Ile Leu Val Ser Ala Ser Leu Val Cys Lys Ile Ala Asp Phe Gly	365                    370                    375                    380	1215
ctg gcc cggtc att gag gac aac gag tac acg gct cgg gaa ggg gcc		1263

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 Phe Thr Ile Lys Ser Asp Val Trp Ser Phe Gly Ile Leu Leu Met Glu  
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 Ile Val Thr Tyr Gly Arg Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu  
 430 435 440  
 gtg atc cga gct ctg gag cgt gga tac cg<sup>g</sup> atg cct cgc cca gag aac 1455  
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 445 450 455 460  
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 Cys Pro Glu Glu Leu Tyr Asn Ile Met Met Arg Cys Trp Lys Asn Arg  
 465 470 475  
 ccg gag gag cg<sup>g</sup> ccg acc ttc gaa tac atc cag agt gtg ctg gat gac 1551  
 Pro Glu Glu Arg Pro Thr Phe Glu Tyr Ile Gln Ser Val Leu Asp Asp  
 480 485 490  
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 Phe Tyr Thr Ala Thr Glu Ser Gln Tyr Gln Gln Pro  
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 35 40 45

Thr Pro Gly Ile Arg Glu Ala Gly Ser Glu Asp Ile Ile Val Val Ala  
       50                     55                     60

Leu Tyr Asp Tyr Glu Ala Ile His His Glu Asp Leu Ser Phe Gln Lys  
       65                     70                     75                     80

Gly Asp Gln Met Val Val Leu Glu Glu Ser Gly Glu Trp Trp Lys Ala  
       85                     90                     95

Arg Ser Leu Ala Thr Arg Lys Glu Gly Tyr Ile Pro Ser Asn Tyr Val  
       100                    105                    110

Ala Arg Val Asp Ser Leu Glu Thr Glu Glu Trp Phe Phe Lys Gly Ile  
       115                    120                    125

Ser Arg Lys Asp Ala Glu Arg Gln Leu Leu Ala Pro Gly Asn Met Leu  
       130                    135                    140

Gly Ser Phe Met Ile Arg Asp Ser Glu Thr Thr Lys Gly Ser Tyr Ser  
       145                    150                    155                    160

Leu Ser Val Arg Asp Tyr Asp Pro Arg Gln Gly Asp Thr Val Lys His  
       165                    170                    175

Tyr Lys Ile Arg Thr Leu Asp Asn Gly Gly Phe Tyr Ile Ser Pro Arg  
       180                    185                    190

Ser Thr Phe Ser Thr Leu Gln Glu Leu Val Asp His Tyr Lys Lys Gly  
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Asn Asp Gly Leu Cys Gln Lys Leu Ser Val Pro Cys Met Ser Ser Lys  
       210                    215                    220

Pro Gln Lys Pro Trp Glu Lys Asp Ala Trp Glu Ile Pro Arg Glu Ser  
       225                    230                    235                    240

Leu Lys Leu Glu Lys Lys Leu Gly Ala Gly Gln Phe Gly Glu Val Trp  
       245                    250                    255

Met Ala Thr Tyr Asn Lys His Thr Lys Val Ala Val Lys Thr Met Lys  
       260                    265                    270

Pro Gly Ser Met Ser Val Glu Ala Phe Leu Ala Glu Ala Asn Val Met  
       275                    280                    285

Lys Thr Leu Gln His Asp Lys Leu Val Lys Leu His Ala Val Val Thr  
       290                    295                    300

Lys Glu Pro Ile Tyr Ile Ile Thr Glu Phe Met Ala Lys Gly Ser Leu  
       305                    310                    315                    320

Leu Asp Phe Leu Lys Ser Asp Glu Gly Ser Lys Gln Pro Leu Pro Lys  
       325                    330                    335

Leu Ile Asp Phe Ser Ala Gln Ile Ala Glu Gly Met Ala Phe Ile Glu  
       340                    345                    350

Gln Arg Asn Tyr Ile His Arg Asp Leu Arg Ala Ala Asn Ile Leu Val  
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 Ser Ala Ser Leu Val Cys Lys Ile Ala Asp Phe Gly Leu Ala Arg Val  
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 Ile Glu Asp Asn Glu Tyr Thr Ala Arg Glu Gly Ala Lys Phe Pro Ile  
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 Lys Trp Thr Ala Pro Glu Ala Ile Asn Phe Gly Ser Phe Thr Ile Lys  
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 Ser Asp Val Trp Ser Phe Gly Ile Leu Leu Met Glu Ile Val Thr Tyr  
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 Gly Arg Ile Pro Tyr Pro Gly Met Ser Asn Pro Glu Val Ile Arg Ala  
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 Leu Glu Arg Gly Tyr Arg Met Pro Arg Pro Glu Asn Cys Pro Glu Glu  
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 Leu Tyr Asn Ile Met Met Arg Cys Trp Lys Asn Arg Pro Glu Glu Arg  
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 Pro Thr Phe Glu Tyr Ile Gln Ser Val Leu Asp Asp Phe Tyr Thr Ala  
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     Met Lys Arg Arg Ser Gly Thr Pro Thr Thr Leu Cys  
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 aag gag ctc aag tac tcc aag gac ccg ccc cag ata tcc atc ata ttc 158  
 Lys Glu Leu Lys Tyr Ser Lys Asp Pro Pro Gln Ile Ser Ile Ile Phe  
     15                       20                               25  
  
 atc ttc gtg aac gag gcc ctg tcg atc ctg cgg tcc gtg cac agt 206  
 Ile Phe Val Asn Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser  
     30                       35                               40  
  
 gcc gtc aat cac acg ccc aca cac ctg ctg aag gaa atc att ctg gtg 254  
 Ala Val Asn His Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val

45	50	55	60	
gat gac aac agc gac gaa gag gag ctg aag gtc ccc cta gag gag tat				302
Asp Asp Asn Ser Asp Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr				
65	70	75		
gtc cac aaa cgc tac ccc ggg ctg gtg aag gtg gta aga aat cag aag				350
Val His Lys Arg Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys				
80	85	90		
agg gaa ggc ctg atc cgc gct cgc att gag ggc tgg aag gtg gct acc				398
Arg Glu Gly Leu Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr				
95	100	105		
ggg cag gtc act ggc ttc ttt gat gcc cac gtg gaa ttc acc gct ggc				446
Gly Gln Val Thr Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly				
110	115	120		
tgg gct gag ccg gtt cta tcc cgc atc cag gaa aac cgg aag cgt gtg				494
Trp Ala Glu Pro Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val				
125	130	135	140	
atc ctc ccc tcc att gac aac atc aaa cag gac aac ttt gag gtg cag				542
Ile Leu Pro Ser Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln				
145	150	155		
cgg tac gag aac tcg gcc cac ggg tac agc tgg gag ctg tgg tgc atg				590
Arg Tyr Glu Asn Ser Ala His Gly Tyr Ser Trp Glu Leu Trp Cys Met				
160	165	170		
tac atc agc ccc cca aaa gac tgg tgg gac gcc gga gac cct tct ctc				638
Tyr Ile Ser Pro Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu				
175	180	185		
ccc atc agg acc cca gcc atg ata ggc tgc tcg ttc gtg gtc aac agg				686
Pro Ile Arg Thr Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg				
190	195	200		
aag ttc ttc ggt gaa att ggt ctt ctg gat cct ggc atg gat gta tac				734
Lys Phe Phe Gly Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr				
205	210	215	220	
gga gga gaa aat att gaa ctg gga atc aag gta tgg ctc tgt ggg ggc				782
Gly Gly Glu Asn Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly				
225	230	235		
agc atg gag gtc ctt cct tgc tca cgg gtg gcc cac att gag cgg aag				830
Ser Met Glu Val Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys				
240	245	250		
aag aag cca tat aat agc aac att ggc ttc tac acc aag agg aat gct				878
Lys Lys Pro Tyr Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala				
255	260	265		
ctt cgc gtt gag gtc tgg atg gac gat tac aag tct cat gtg tac				926
Leu Arg Val Ala Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr				
270	275	280		

ata gcg tgg aac ctg ccg ctg gag aat ccg gga att gac atc ggt gat Ile Ala Trp Asn Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp 285	290	295	300	974
gtc tcc gaa aga aga gca tta agg aaa agt tta aag tgt aag aat ttc Val Ser Glu Arg Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe 305	310	315		1022
cag tgg tac ctg gac cat gtt tac cca gaa atg aga aga tac aat aat Gln Trp Tyr Leu Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn 320	325	330		1070
acc gtt gct tac ggg gag ctt cgc aac aac aag gca aaa gac gtc tgc Thr Val Ala Tyr Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys 335	340	345		1118
ttg gac cag ggg ccg ctg gag aac cac aca gca ata ttg tat ccg tgc Leu Asp Gln Gly Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys 350	355	360		1166
cat ggc tgg gga cca cag ctt gcc cgc tac acc aag gaa ggc ttc ctg His Gly Trp Gly Pro Gln Leu Ala Arg Tyr Thr Lys Glu Gly Phe Leu 365	370	375	380	1214
cac ttg ggt gcc ctg ggg acc acc aca ctc ctc cct gac acc cgc tgc His Leu Gly Ala Leu Gly Thr Thr Leu Leu Pro Asp Thr Arg Cys 385	390	395		1262
ctg gtg gac aac tcc aag agt cggtt ccc cag ctc ctg gac tgc gac Leu Val Asp Asn Ser Lys Ser Arg Leu Pro Gln Leu Leu Asp Cys Asp 400	405	410		1310
aag gtc aag agc agc ctg tac aag cgc tgg aac ttc atc cag aat gga Lys Val Lys Ser Ser Leu Tyr Lys Arg Trp Asn Phe Ile Gln Asn Gly 415	420	425		1358
gcc atc atg aac aag ggc acg gga cgc tgc ctg gag gtg gag aac cgg Ala Ile Met Asn Lys Gly Thr Gly Arg Cys Leu Glu Val Glu Asn Arg 430	435	440		1406
ggc ctg gct ggc atc gac ctc atc ctc cgc agc tgc aca ggt cag agg Gly Leu Ala Gly Ile Asp Leu Ile Leu Arg Ser Cys Thr Gly Gln Arg 445	450	455	460	1454
tgg acc att aag aac tcc atc aag tagagggagg gagctggggc actggagcct Trp Thr Ile Lys Asn Ser Ile Lys 465				1508
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20															

Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser Ala Val Asn His  
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 Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Asn Ser  
           50                  55                  60  
  
 Asp Glu Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr Val His Lys Arg  
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 Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys Arg Glu Gly Leu  
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 Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr Gly Gln Val Thr  
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 Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly Trp Ala Glu Pro  
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 Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val Ile Leu Pro Ser  
   130                  135                  140  
  
 Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln Arg Tyr Glu Asn  
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 Ser Ala His Gly Tyr Ser Trp Glu Leu Trp Cys Met Tyr Ile Ser Pro  
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 Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu Pro Ile Arg Thr  
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 Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg Lys Phe Phe Gly  
   195                  200                  205  
  
 Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr Gly Gly Glu Asn  
   210                  215                  220  
  
 Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly Ser Met Glu Val  
   225                  230                  235                  240  
  
 Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys Lys Pro Tyr  
   245                  250                  255  
  
 Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala Leu Arg Val Ala  
   260                  265                  270  
  
 Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr Ile Ala Trp Asn  
   275                  280                  285  
  
 Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp Val Ser Glu Arg  
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 Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe Gln Trp Tyr Leu  
   305                  310                  315                  320  
  
 Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn Thr Val Ala Tyr  
   325                  330                  335

Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys Leu Asp Gln Gly  
340 345 350

Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys His Gly Trp Gly  
355 360 365

Pro Gln Leu Ala Arg Tyr Thr Lys Glu Gly Phe Leu His Leu Gly Ala  
370 375 380

Leu Gly Thr Thr Thr Leu Leu Pro Asp Thr Arg Cys Leu Val Asp Asn  
385 390 395 400

Ser Lys Ser Arg Leu Pro Gln Leu Leu Asp Cys Asp Lys Val Lys Ser  
405 410 415

Ser Leu Tyr Lys Arg Trp Asn Phe Ile Gln Asn Gly Ala Ile Met Asn  
420 425 430

Lys Gly Thr Gly Arg Cys Leu Glu Val Glu Asn Arg Gly Leu Ala Gly  
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Asn Ser Ile Lys  
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ctg ctg aag gaa atc att ctg gtg gat gac aac agc gac gaa gag gag 97  
Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Asn Ser Asp Glu Glu Glu  
20 25 30

ctg aag gtc ccc cta gag gag tat gtc cac aaa cgc tac ccc ggg ctg 145  
Leu Lys Val Pro Leu Glu Glu Tyr Val His Lys Arg Tyr Pro Gly Leu  
35 40 45

gtg aag gtg gta aga aat cag aag agg gaa ggc ctg atc cgc gct cgc 193  
Val Lys Val Val Arg Asn Gln Lys Arg Glu Gly Leu Ile Arg Ala Arg  
50 55 60

att gag ggc tgg aag gtg gct acc ggg cag gtc act ggc ttc ttt gat 241  
Ile Glu Gly Trp Lys Val Ala Thr Gly Gln Val Thr Gly Phe Phe Asp  
65 70 75 80

gcc cac gtg gaa ttc acc gct ggc tgg gct gag ccg gtt cta tcc cgc	289
Ala His Val Glu Phe Thr Ala Gly Trp Ala Glu Pro Val Leu Ser Arg	
85 90 95	
atc cag gaa aac cg <sup>g</sup> aag cgt gtg atc ctc ccc tcc att gac aac atc	337
Ile Gln Glu Asn Arg Lys Arg Val Ile Leu Pro Ser Ile Asp Asn Ile	
100 105 110	
aaa cag gac aac ttt gag gtg cag cg <sup>g</sup> tac gag aac tcg gcc cac ggg	385
Lys Gln Asp Asn Phe Glu Val Gln Arg Tyr Glu Asn Ser Ala His Gly	
115 120 125	
tac agc tgg gag ctg tgg tgc atg tac atc agc ccc cca aaa gac tgg	433
Tyr Ser Trp Glu Leu Trp Cys Met Tyr Ile Ser Pro Pro Lys Asp Trp	
130 135 140	
tgg gac gcc gga gac cct tct ctc ccc atc agg acc cca gcc atg ata	481
Trp Asp Ala Gly Asp Pro Ser Leu Pro Ile Arg Thr Pro Ala Met Ile	
145 150 155 160	
ggc tgc tcg ttc gtg gtc aac agg aag ttc ttc ggt gaa att ggt ctt	529
Gly Cys Ser Phe Val Val Asn Arg Lys Phe Phe Gly Glu Ile Gly Leu	
165 170 175	
ctg gat cct ggc atg gat gta tac gga gga gaa aat att gaa ctg gga	577
Leu Asp Pro Gly Met Asp Val Tyr Gly Gly Glu Asn Ile Glu Leu Gly	
180 185 190	
atc aag gta tgg ctc tgt ggg ggc agc atg gag gtc ctt cct tgc tca	625
Ile Lys Val Trp Leu Cys Gly Gly Ser Met Glu Val Leu Pro Cys Ser	
195 200 205	
cgg gtg gcc cac att gag cg <sup>g</sup> aag aag cca tat aat agc aac att	673
Arg Val Ala His Ile Glu Arg Lys Lys Pro Tyr Asn Ser Asn Ile	
210 215 220	
ggc ttc tac acc aag agg aat gct ctt cgc gtt gct gag gtc tgg atg	721
Gly Phe Tyr Thr Lys Arg Asn Ala Leu Arg Val Ala Glu Val Trp Met	
225 230 235 240	
gac gat tac aag tct cat gtg tac ata gc <sup>g</sup> tgg aac ctg ccg ctg gag	769
Asp Asp Tyr Lys Ser His Val Tyr Ile Ala Trp Asn Leu Pro Leu Glu	
245 250 255	
aat ccg gga att gac atc ggt gat gtc tcc gaa aga aga gca tta agg	817
Asn Pro Gly Ile Asp Ile Gly Asp Val Ser Glu Arg Arg Ala Leu Arg	
260 265 270	
aaa agt tta aag tgt aag aat ttc cag tgg tac ctg gac cat gtt tac	865
Lys Ser Leu Lys Cys Lys Asn Phe Gln Trp Tyr Leu Asp His Val Tyr	
275 280 285	
cca gaa atg aga aga tac aat aat acc gtt gct tac ggg gag ctt cgc	913
Pro Glu Met Arg Arg Tyr Asn Asn Thr Val Ala Tyr Gly Glu Leu Arg	
290 295 300	

aac aac aag gca aaa gac gtc tgc ttg gac cag ggg ccg ctg gag aac Asn Asn Lys Ala Lys Asp Val Cys Leu Asp Gln Gly Pro Leu Glu Asn 305                   310                   315                   320	961
cac aca gca ata ttg tat ccg tgc cat ggc tgg gga cca cag ctt gcc His Thr Ala Ile Leu Tyr Pro Cys His Gly Trp Gly Pro Gln Leu Ala 325                   330                   335	1009
cgc tac acc aag gaa ggc ttc ctg cac ttg ggt gcc ctg ggg acc acc Arg Tyr Thr Lys Glu Gly Phe Leu His Leu Gly Ala Leu Gly Thr Thr 340                   345                   350	1057
aca ctc ctc cct gac acc cgc tgc ctg gtg gac aac tcc aag agt cgg Thr Leu Leu Pro Asp Thr Arg Cys Leu Val Asp Asn Ser Lys Ser Arg 355                   360                   365	1105
ctg ccc cag ctc ctg gac tgc gac aag gtc aag agc agc ctg tac aag Leu Pro Gln Leu Leu Asp Cys Asp Lys Val Lys Ser Ser Leu Tyr Lys 370                   375                   380	1153
cgc tgg aac ttc atc cag aat gga gcc atc atg aac aag ggc acg gga Arg Trp Asn Phe Ile Gln Asn Gly Ala Ile Met Asn Lys Gly Thr Gly 385                   390                   395                   400	1201
cgc tgc ctg gag gtg gag aac cgg ggc ctg gct ggc atc gac ctc atc Arg Cys Leu Glu Val Asn Arg Gly Leu Ala Gly Ile Asp Leu Ile 405                   410                   415	1249
ctc cgc agc tgc aca ggt cag agg tgg acc att aag aac tcc atc aag Leu Arg Ser Cys Thr Gly Gln Arg Trp Thr Ile Lys Asn Ser Ile Lys 420                   425                   430	1297
ctc gag ggc Leu Glu Gly 435	1306
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Leu Lys Val Pro Leu Glu Glu Tyr Val His Lys Arg Tyr Pro Gly Leu 35                   40                   45	
Val Lys Val Val Arg Asn Gln Lys Arg Glu Gly Leu Ile Arg Ala Arg 50                   55                   60	
Ile Glu Gly Trp Lys Val Ala Thr Gly Gln Val Thr Gly Phe Phe Asp 65                   70                   75                   80	

Ala His Val Glu Phe Thr Ala Gly Trp Ala Glu Pro Val Leu Ser Arg  
                       85   90                         95  
  
 Ile Gln Glu Asn Arg Lys Arg Val Ile Leu Pro Ser Ile Asp Asn Ile  
                       100                                 105                         110  
  
 Lys Gln Asp Asn Phe Glu Val Gln Arg Tyr Glu Asn Ser Ala His Gly  
                       115                                 120                         125  
  
 Tyr Ser Trp Glu Leu Trp Cys Met Tyr Ile Ser Pro Pro Lys Asp Trp  
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 Trp Asp Ala Gly Asp Pro Ser Leu Pro Ile Arg Thr Pro Ala Met Ile  
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 Gly Cys Ser Phe Val Val Asn Arg Lys Phe Phe Gly Glu Ile Gly Leu  
                       165                                 170                         175  
  
 Leu Asp Pro Gly Met Asp Val Tyr Gly Gly Glu Asn Ile Glu Leu Gly  
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 Ile Lys Val Trp Leu Cys Gly Gly Ser Met Glu Val Leu Pro Cys Ser  
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 Arg Val Ala His Ile Glu Arg Lys Lys Lys Pro Tyr Asn Ser Asn Ile  
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 Asp Asp Tyr Lys Ser His Val Tyr Ile Ala Trp Asn Leu Pro Leu Glu  
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 Asn Pro Gly Ile Asp Ile Gly Asp Val Ser Glu Arg Arg Ala Leu Arg  
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 Lys Ser Leu Lys Cys Lys Asn Phe Gln Trp Tyr Leu Asp His Val Tyr  
                       275                                 280                         285  
  
 Pro Glu Met Arg Arg Tyr Asn Asn Thr Val Ala Tyr Gly Glu Leu Arg  
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 Asn Asn Lys Ala Lys Asp Val Cys Leu Asp Gln Gly Pro Leu Glu Asn  
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 His Thr Ala Ile Leu Tyr Pro Cys His Gly Trp Gly Pro Gln Leu Ala  
                       325                                 330                         335  
  
 Arg Tyr Thr Lys Glu Gly Phe Leu His Leu Gly Ala Leu Gly Thr Thr  
                       340                                 345                         350  
  
 Thr Leu Leu Pro Asp Thr Arg Cys Leu Val Asp Asn Ser Lys Ser Arg  
                       355                                 360                         365  
  
 Leu Pro Gln Leu Leu Asp Cys Asp Lys Val Lys Ser Ser Leu Tyr Lys  
                       370                                 375                         380

Arg Trp Asn Phe Ile Gln Asn Gly Ala Ile Met Asn Lys Gly Thr Gly  
 385                   390                   395                   400  
 Arg Cys Leu Glu Val Glu Asn Arg Gly Leu Ala Gly Ile Asp Leu Ile  
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 Met Lys Arg Arg Ser Gly Thr Pro Thr Thr Leu Cys  
 1                 5                 10

aag gag ctc aag tac tcc aag gac ccg ccc cag ata tcc atc ata ttc 158  
 Lys Glu Leu Lys Tyr Ser Lys Asp Pro Pro Gln Ile Ser Ile Ile Phe  
 15                 20                 25

atc ttc gtg aac gag gcc ctg tcg atc ctg cggttccgtg cac agt 206  
 Ile Phe Val Asn Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser  
 30                 35                 40

gcc gtc aat cac acg ccc aca cac ctg ctg aag gaa atc att ctg gtg 254  
 Ala Val Asn His Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val  
 45                 50                 55                 60

gat gac aac agc gac gaa gag gag ctg aag gtc ccc cta gag gag tat 302  
 Asp Asp Asn Ser Asp Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr  
 65                 70                 75

gtc cac aaa cgc tac ccc ggg ctg gtg aag gtg gta aga aat cag aag 350  
 Val His Lys Arg Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys  
 80                 85                 90

agg gaa ggc ctg atc cgc gct cgc att gag ggc tgg aag gtg gct acc 398  
 Arg Glu Gly Leu Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr  
 95                 100                 105

ggg cag gtc act ggc ttc ttt gat gcc cac gtg gaa ttc acc gct ggc 446  
 Gly Gln Val Thr Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly  
 110                 115                 120

tgg gct gag ccg gtt cta tcc cgc atc cag gaa aac cgg aag cgt gtg 494

Trp Ala Glu Pro Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val			
125	130	135	140
atc ctc ccc tcc att gac aac atc aaa cag gac aac ttt gag gtg cag			542
Ile Leu Pro Ser Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln			
145	150	155	
cgg tac gag aac tcg gcc cac ggg tac ggc tgg gag ctg tgg tgc atg			590
Arg Tyr Glu Asn Ser Ala His Gly Tyr Gly Trp Glu Leu Trp Cys Met			
160	165	170	
tac atc agc ccc cca aaa gac tgg tgg gac gcc gga gac cct tct ctc			638
Tyr Ile Ser Pro Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu			
175	180	185	
ccc atc agg acc cca gcc atg ata ggc tgc tcg ttc gtg gtc aac agg			686
Pro Ile Arg Thr Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg			
190	195	200	
aag ttc ttc ggt gaa att ggt ctt ctg gat cct ggc atg gat gta tac			734
Lys Phe Phe Gly Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr			
205	210	215	220
gga gga gaa aat att gaa ctg gga atc aag gta tgg ctc tgt ggg ggc			782
Gly Gly Glu Asn Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly			
225	230	235	
agc atg gag gtc ctt cct tgc tca cgg gtg gcc cac att gag cgg aag			830
Ser Met Glu Val Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys			
240	245	250	
aag aag cca tat aat agc aac att ggc ttc tac acc aag agg aat gct			878
Lys Lys Pro Tyr Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala			
255	260	265	
ctt cgc gtt gag gtc tgg atg gac gat tac aag tct cat gtg tac			926
Leu Arg Val Ala Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr			
270	275	280	
ata gcg tgg aac ctg ccg ctg gag aat ccg gga att gac atc ggt gat			974
Ile Ala Trp Asn Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp			
285	290	295	300
gtc tcc gaa aga aga gca tta agg aaa agt tta aag tgt aag aat ttc			1022
Val Ser Glu Arg Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe			
305	310	315	
cag tgg tac ctg gac cat gtt tac cca gaa atg aga aga tac aat aat			1070
Gln Trp Tyr Leu Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn			
320	325	330	
acc gtt gct tac ggg gag ctt cgc aac aac aag gca aaa gac gtc tgc			1118
Thr Val Ala Tyr Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys			
335	340	345	
ttg gac cag ggg ccg ctg gag aac cac aca gca ata ttg tat ccg tgc			1166
Leu Asp Gln Gly Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys			

350	355	360	
cat ggc tgg gga cca cag ctt gcc cgc tac acc aag gaa ggc ttc ctg His Gly Trp Gly Pro Gln Leu Ala Arg Tyr Thr Lys Glu Gly Phe Leu			1214
365	370	375	380
cac ttg ggt gcc ctg ggg acc acc aca ctc ctc cct gac acc cgc tgc His Leu Gly Ala Leu Gly Thr Thr Leu Leu Pro Asp Thr Arg Cys			1262
385	390		395
ctg gtg gac aac tcc aag agt cgg ctg ccc cag ctc ctg gac tgc gac Leu Val Asp Asn Ser Lys Ser Arg Leu Pro Gln Leu Leu Asp Cys Asp			1310
400	405	410	
aag gtc aag agc agc ctg tac aag cgc tgg aac ttc atc cag aat gga Lys Val Lys Ser Ser Leu Tyr Lys Arg Trp Asn Phe Ile Gln Asn Gly			1358
415	420	425	
gcc atc atg aac aag ggc acg gga cgc tgc ctg gag gtg gag aac cgg Ala Ile Met Asn Lys Gly Thr Gly Arg Cys Leu Glu Val Glu Asn Arg			1406
430	435	440	
ggc ctg gct ggc atc gac ctc atc ctc cgc agc tgc aca ggt cag agg Gly Leu Ala Gly Ile Asp Leu Ile Leu Arg Ser Cys Thr Gly Gln Arg			1454
445	450	455	460
tgg acc att aag aac tcc atc aag tagagggagg gagctggggc actggagcct Trp Thr Ile Lys Asn Ser Ile Lys			1508
465			
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gccaccgggg agaagcagcg gtcctccatc cagaacctaa gggctgaagc aaaggctgcc			2348

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<212> PRT

<213> Homo sapiens

<400> 66

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Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser Ala Val Asn His  
35 40 45

Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Asn Ser  
50 55 60

Asp Glu Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr Val His Lys Arg  
65 70 75 80

Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys Arg Glu Gly Leu  
85 90 95

Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr Gly Gln Val Thr  
100 105 110

Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly Trp Ala Glu Pro  
115 120 125

Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val Ile Leu Pro Ser  
 130 135 140  
 Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln Arg Tyr Glu Asn  
 145 150 155 160  
 Ser Ala His Gly Tyr Gly Trp Glu Leu Trp Cys Met Tyr Ile Ser Pro  
 165 170 175  
 Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu Pro Ile Arg Thr  
 180 185 190  
 Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg Lys Phe Phe Gly  
 195 200 205  
 Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr Gly Glu Asn  
 210 215 220  
 Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly Ser Met Glu Val  
 225 230 235 240  
 Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys Lys Lys Pro Tyr  
 245 250 255  
 Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala Leu Arg Val Ala  
 260 265 270  
 Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr Ile Ala Trp Asn  
 275 280 285  
 Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp Val Ser Glu Arg  
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 Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe Gln Trp Tyr Leu  
 305 310 315 320  
 Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn Thr Val Ala Tyr  
 325 330 335  
 Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys Leu Asp Gln Gly  
 340 345 350  
 Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys His Gly Trp Gly  
 355 360 365  
 Pro Gln Leu Ala Arg Tyr Thr Lys Glu Gly Phe Leu His Leu Gly Ala  
 370 375 380  
 Leu Gly Thr Thr Thr Leu Leu Pro Asp Thr Arg Cys Leu Val Asp Asn  
 385 390 395 400  
 Ser Lys Ser Arg Leu Pro Gln Leu Leu Asp Cys Asp Lys Val Lys Ser  
 405 410 415  
 Ser Leu Tyr Lys Arg Trp Asn Phe Ile Gln Asn Gly Ala Ile Met Asn  
 420 425 430

Lys Gly Thr Gly Arg Cys Leu Glu Val Asn Arg Gly Leu Ala Gly  
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 Met Lys Arg Arg Ser Gly Thr Pro Thr Thr Leu Cys  
 1 5 10  
 aag gag ctc aag tac tcc aag gac ccg ccc cag ata tcc atc ata ttc 158  
 Lys Glu Leu Lys Tyr Ser Lys Asp Pro Pro Gln Ile Ser Ile Ile Phe  
 15 20 25  
 atc ttc gtg aac gag gcc ctg tcg atc ctg cggttccgtg cac agt 206  
 Ile Phe Val Asn Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser  
 30 35 40  
 gcc gtc aat cac acg ccc aca cac ctg ctg aag gaa atc att ctg gtg 254  
 Ala Val Asn His Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val  
 45 50 55 60  
 gat gac aac agc gac gaa gag gag ctg aag gtc ccc cta gag gag tat 302  
 Asp Asp Asn Ser Asp Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr  
 65 70 75  
 gtc cac aaa cgc tac ccc ggg ctg gtg aag gtg gta aga aat cag aag 350  
 Val His Lys Arg Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys  
 80 85 90  
 agg gaa ggc ctg atc cgc gct cgc att gag ggc tgg aag gtg gct acc 398  
 Arg Glu Gly Leu Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr  
 95 100 105  
 ggg cag gtc act ggc ttc ttt gat gcc cac gtg gaa ttc acc gct ggc 446  
 Gly Gln Val Thr Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly  
 110 115 120  
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 Trp Ala Glu Pro Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val  
 125 130 135 140

atc ctc ccc tcc att gac aac atc aaa cag gac aac ttt gag gtg cag Ile Leu Pro Ser Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln	145	150	155	542	
cggtac gag aac tcg gcc cac ggg tac agc tgg gag ctg tgg tgc atg Arg Tyr Glu Asn Ser Ala His Gly Tyr Ser Trp Glu Leu Trp Cys Met	160	165	170	590	
tac atc agc ccc cca aaa gac tgg tgg gac gcc gga gac cct tct ctc Tyr Ile Ser Pro Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu	175	180	185	638	
ccc atc agg acc cca gcc atg ata ggc tgc tcg ttc gtg gtc aac agg Pro Ile Arg Thr Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg	190	195	200	686	
aag ttc ttc ggt gaa att ggt ctt ctg gat cct ggc atg gat gta tac Lys Phe Phe Gly Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr	205	210	215	220	734
ggaggaaattt gaaattt gttt ggtt gaaattt gttt ggtt gaaattt gttt ggtt Gly Gly Glu Asn Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly	225	230	235		782
agc atg gag gtc ctt cct tgc tca cgg gtg gcc cac att gag cggtt aag Ser Met Glu Val Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys	240	245	250		830
aag aag cca tat aat agc aac att ggc ttc tac acc aag agg aat gct Lys Lys Pro Tyr Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala	255	260	265		878
ctt cgc gtt gct gag gtc tgg atg gac gat tac aag tct cat gtg tac Leu Arg Val Ala Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr	270	275	280		926
ata gcg tgg aac ctg ccg ctg gag aat ccg gga att gac atc ggt gat Ile Ala Trp Asn Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp	285	290	295	300	974
gtc tcc gaa aga aga gca tta agg aaa agt tta aag tgt aag aat ttc Val Ser Glu Arg Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe	305	310	315		1022
cag tgg tac ctg gac cat gtt tac cca gaa atg aga aga tac aat aat Gln Trp Tyr Leu Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn	320	325	330		1070
acc gtt gct tac ggg gag ctt cgc aac aac aag gca aaa gac gtc tgc Thr Val Ala Tyr Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys	335	340	345		1118
ttg gac cag ggg ccg ctg gag aac cac aca gca ata ttg tat ccg tgc Leu Asp Gln Gly Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys	350	355	360		1166
cat ggc tgg gga cca cag ctt gcc cgc tac acc aag gaa ggc ttc ctg					1214

His	Gly	Trp	Gly	Pro	Gln	Leu	Ala	Arg	Tyr	Thr	Lys	Glu	Gly	Phe	Leu	
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His	Leu	Gly	Ala	Leu	Gly	Thr	Thr	Thr	Leu	Leu	Pro	Asp	Thr	Arg	Cys	
385					390						395					
ctg gtg gac aac tcc aag agt cgg ctg ccc cag ctc ctg gac tgc gac															1310	
Leu	Val	Asp	Asn	Ser	Lys	Ser	Arg	Leu	Pro	Gln	Leu	Leu	Asp	Cys	Asp	
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Lys	Val	Lys	Ser	Ser	Leu	Tyr	Lys	Arg	Trp	Asn	Phe	Ile	Gln	Asn	Gly	
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Ala	Ile	Met	Asn	Lys	Gly	Thr	Gly	Arg	Cys	Leu	Glu	Val	Glu	Asn	Arg	
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ggc ctg gct ggc atc gac ctc atc ctc cgc agc tgc aca ggt cag agg															1454	
Gly	Leu	Ala	Gly	Ile	Asp	Leu	Ile	Leu	Arg	Ser	Cys	Thr	Gly	Gln	Arg	
445					450					455			460			
tgg acc att aag aac tcc atc aag tagagggagg gagctggggc actggagct															1508	
Trp	Thr	Ile	Lys	Asn	Ser	Ile	Lys									
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<212> PRT

<213> Homo sapiens

<400> 68

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Tyr Ser Lys Asp Pro Pro Gln Ile Ser Ile Ile Phe Ile Phe Val Asn  
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Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser Ala Val Asn His  
35 40 45

Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Asn Ser  
50 55 60

Asp Glu Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr Val His Lys Arg  
65 70 75 80

Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys Arg Glu Gly Leu  
85 90 95

Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr Gly Gln Val Thr  
100 105 110

Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly Trp Ala Glu Pro  
115 120 125

Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val Ile Leu Pro Ser  
130 135 140

Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln Arg Tyr Glu Asn  
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 Ser Ala His Gly Tyr Ser Trp Glu Leu Trp Cys Met Tyr Ile Ser Pro  
 165 170 175  
 Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu Pro Ile Arg Thr  
 180 185 190  
 Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg Lys Phe Phe Gly  
 195 200 205  
 Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr Gly Gly Glu Asn  
 210 215 220  
 Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly Ser Met Glu Val  
 225 230 235 240  
 Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys Lys Lys Pro Tyr  
 245 250 255  
 Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala Leu Arg Val Ala  
 260 265 270  
 Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr Ile Ala Trp Asn  
 275 280 285  
 Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp Val Ser Glu Arg  
 290 295 300  
 Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe Gln Trp Tyr Leu  
 305 310 315 320  
 Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn Thr Val Ala Tyr  
 325 330 335  
 Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys Leu Asp Gln Gly  
 340 345 350  
 Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys His Gly Trp Gly  
 355 360 365  
 Pro Gln Leu Ala Arg Tyr Thr Lys Glu Gly Phe Leu His Leu Gly Ala  
 370 375 380  
 Leu Gly Thr Thr Thr Leu Leu Pro Asp Thr Arg Cys Leu Val Asp Asn  
 385 390 395 400  
 Ser Lys Ser Arg Leu Pro Gln Leu Leu Asp Cys Asp Lys Val Lys Ser  
 405 410 415  
 Ser Leu Tyr Lys Arg Trp Asn Phe Ile Gln Asn Gly Ala Ile Met Asn  
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 Lys Gly Thr Gly Arg Cys Leu Glu Val Glu Asn Arg Gly Leu Ala Gly  
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 Met Lys Arg Arg Ser Gly Thr Pro Thr Thr Leu Cys  
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 aag gag ctc aag tac tcc aag gac ccg ccc cag ata tcc atc ata ttc 158  
 Lys Glu Leu Lys Tyr Ser Lys Asp Pro Pro Gln Ile Ser Ile Ile Phe  
 15 20 25  
 atc ttc gtg aac gag gcc ctg tcg atc ctg cggttccgtg cac agt 206  
 Ile Phe Val Asn Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser  
 30 35 40  
 gcc gtc aat cac acg ccc aca cac ctg ctg aag gaa atc att ctg gtg 254  
 Ala Val Asn His Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val  
 45 50 55 60  
 gat gac aac agc gac gaa gag gag ctg aag gtc ccc cta gag gag tat 302  
 Asp Asp Asn Ser Asp Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr  
 65 70 75  
 gtc cac aaa cgc tac ccc ggg ctg gtg aag gtg gta aga aat cag aag 350  
 Val His Lys Arg Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys  
 80 85 90  
 agg gaa ggc ctg atc cgc gct cgc att gag ggc tgg aag gtg gct acc 398  
 Arg Glu Gly Leu Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr  
 95 100 105  
 ggg cag gtc act ggc ttc ttt gat gcc cac gtg gaa ttc acc gct ggc 446  
 Gly Gln Val Thr Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly  
 110 115 120  
 tgg gct gag ccg gtt cta tcc cgc atc cag gaa aac cgg aag cgt gtg 494  
 Trp Ala Glu Pro Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val  
 125 130 135 140  
 atc ctc ccc tcc att gac aac atc aaa cag gac aac ttt gag gtg cag 542  
 Ile Leu Pro Ser Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln  
 145 150 155

ccg tac gag aac tcg gcc cac ggg tac agc tgg gag ctg tgg tgc atg Arg Tyr Glu Asn Ser Ala His Gly Tyr Ser Trp Glu Leu Trp Cys Met	160	165	170	590
tac atc agc ccc cca aaa gac tgg tgg gac gcc gga gac cct tct ctc Tyr Ile Ser Pro Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu	175	180	185	638
ccc atc agg acc cca gcc atg ata ggc tgc tcg ttc gtg gtc aac agg Pro Ile Arg Thr Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg	190	195	200	686
aag ttc ttc ggt gaa att ggt ctt ctg gat cct ggc atg gat gta tac Lys Phe Phe Gly Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr	205	210	215	734
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gga gga gaa aat att gaa ctg gga atc aag gta tgg ctc tgt ggg ggc Gly Gly Glu Asn Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly	225	230	235	782
agc atg gag gtc ctt cct tgc tca cgg gtg gcc cac att gag cgg aag Ser Met Glu Val Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys	240	245	250	830
250				
aag aag cca tat aat agc aac att ggc ttc tac acc aag agg aat gct Lys Lys Pro Tyr Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala	255	260	265	878
265				
ctt cgc gtt gct gag gtc tgg atg gac gat tac aag tct cat gtg tac Leu Arg Val Ala Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr	270	275	280	926
280				
ata gcg tgg aac ctg ccg ctg gag aat ccg gga att gac atc ggt gat Ile Ala Trp Asn Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp	285	290	295	974
295				
gtc tcc gaa aga aga gca tta agg aaa agt tta aag tgt aag aat ttc Val Ser Glu Arg Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe	305	310	315	1022
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cag tgg tac ctg gac cat gtt tac cca gaa atg aga aga tac aat aat Gln Trp Tyr Leu Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn	320	325	330	1070
330				
acc gtt gct tac ggg gag ctt cgc aac aac aag gca aaa gac gtc tgc Thr Val Ala Tyr Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys	335	340	345	1118
345				
ttg gac cag ggg ccg ctg gag aac cac aca gca ata ttg tat ccg tgc Leu Asp Gln Gly Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys	350	355	360	1166
360				
cat ggc tgg gga cca cag ctt gcc cgc tac acc aag gaa ggc ttc ctg His Gly Trp Gly Pro Gln Leu Ala Arg Tyr Thr Lys Glu Gly Phe Leu	365	370	375	1214
375				

cac ttg ggt gcc ctg ggg acc acc aca ctc ctc cct gac acc cgc tgc	1262
His Leu Gly Ala Leu Gly Thr Thr Thr Leu Leu Pro Asp Thr Arg Cys	
385	390
395	
ctg gtg gac aac tcc aag agt cggtt ccc cag ctc ctg gac tgc gac	1310
Leu Val Asp Asn Ser Lys Ser Arg Leu Pro Gln Leu Leu Asp Cys Asp	
400	405
410	
aag gtc aag agc agc ctg tac aag cgc tgg aac ttc atc cag aat gga	1358
Lys Val Lys Ser Ser Leu Tyr Lys Arg Trp Asn Phe Ile Gln Asn Gly	
415	420
425	
gcc atc atg aac aag ggc acg gga cgc tgc ctg gag gtg gag aac cgg	1406
Ala Ile Met Asn Lys Gly Thr Gly Arg Cys Leu Glu Val Glu Asn Arg	
430	435
440	
ggc ctg gct ggc atc gac ctc atc ctc cgc agc tgc aca ggt cag agg	1454
Gly Leu Ala Gly Ile Asp Leu Ile Leu Arg Ser Cys Thr Gly Gln Arg	
445	450
455	460
tgg acc att aag aac tcc atc aag tagaggagg gagctggggc actggagcct	1508
Trp Thr Ile Lys Asn Ser Ile Lys	
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Tyr Ser Lys Asp Pro Pro Gln Ile Ser Ile Ile Phe Ile Phe Val Asn  
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Glu Ala Leu Ser Val Ile Leu Arg Ser Val His Ser Ala Val Asn His  
35 40 45

Thr Pro Thr His Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Asn Ser  
50 55 60

Asp Glu Glu Glu Leu Lys Val Pro Leu Glu Glu Tyr Val His Lys Arg  
65 70 75 80

Tyr Pro Gly Leu Val Lys Val Val Arg Asn Gln Lys Arg Glu Gly Leu  
85 90 95

Ile Arg Ala Arg Ile Glu Gly Trp Lys Val Ala Thr Gly Gln Val Thr  
100 105 110

Gly Phe Phe Asp Ala His Val Glu Phe Thr Ala Gly Trp Ala Glu Pro  
115 120 125

Val Leu Ser Arg Ile Gln Glu Asn Arg Lys Arg Val Ile Leu Pro Ser  
130 135 140

Ile Asp Asn Ile Lys Gln Asp Asn Phe Glu Val Gln Arg Tyr Glu Asn  
145 150 155 160

Ser Ala His Gly Tyr Ser Trp Glu Leu Trp Cys Met Tyr Ile Ser Pro  
                  165                 170                 175  
  
 Pro Lys Asp Trp Trp Asp Ala Gly Asp Pro Ser Leu Pro Ile Arg Thr  
                  180                 185                 190  
  
 Pro Ala Met Ile Gly Cys Ser Phe Val Val Asn Arg Lys Phe Phe Gly  
                  195                 200                 205  
  
 Glu Ile Gly Leu Leu Asp Pro Gly Met Asp Val Tyr Gly Gly Glu Asn  
                  210                 215                 220  
  
 Ile Glu Leu Gly Ile Lys Val Trp Leu Cys Gly Gly Ser Met Glu Val  
                  225                 230                 235                 240  
  
 Leu Pro Cys Ser Arg Val Ala His Ile Glu Arg Lys Lys Pro Tyr  
                  245                 250                 255  
  
 Asn Ser Asn Ile Gly Phe Tyr Thr Lys Arg Asn Ala Leu Arg Val Ala  
                  260                 265                 270  
  
 Glu Val Trp Met Asp Asp Tyr Lys Ser His Val Tyr Ile Ala Trp Asn  
                  275                 280                 285  
  
 Leu Pro Leu Glu Asn Pro Gly Ile Asp Ile Gly Asp Val Ser Glu Arg  
                  290                 295                 300  
  
 Arg Ala Leu Arg Lys Ser Leu Lys Cys Lys Asn Phe Gln Trp Tyr Leu  
                  305                 310                 315                 320  
  
 Asp His Val Tyr Pro Glu Met Arg Arg Tyr Asn Asn Thr Val Ala Tyr  
                  325                 330                 335  
  
 Gly Glu Leu Arg Asn Asn Lys Ala Lys Asp Val Cys Leu Asp Gln Gly  
                  340                 345                 350  
  
 Pro Leu Glu Asn His Thr Ala Ile Leu Tyr Pro Cys His Gly Trp Gly  
                  355                 360                 365  
  
 Pro Gln Leu Ala Arg Tyr Thr Lys Glu Gly Phe Leu His Leu Gly Ala  
                  370                 375                 380  
  
 Leu Gly Thr Thr Leu Leu Pro Asp Thr Arg Cys Leu Val Asp Asn  
                  385                 390                 395                 400  
  
 Ser Lys Ser Arg Leu Pro Gln Leu Leu Asp Cys Asp Lys Val Lys Ser  
                  405                 410                 415  
  
 Ser Leu Tyr Lys Arg Trp Asn Phe Ile Gln Asn Gly Ala Ile Met Asn  
                  420                 425                 430  
  
 Lys Gly Thr Gly Arg Cys Leu Glu Val Glu Asn Arg Gly Leu Ala Gly  
                  435                 440                 445  
  
 Ile Asp Leu Ile Leu Arg Ser Cys Thr Gly Gln Arg Trp Thr Ile Lys  
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Asn Ser Ile Lys

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gga gaa gga gga tca aaa gag gtg gtg ggg act ttt aag gct aaa gac 97  
Gly Glu Gly Ser Lys Glu Val Val Gly Thr Phe Lys Ala Lys Asp  
20 25 30

cta ata gtc aca cca gct acc att tta aag gaa aaa cca gac ccc aat 145  
Leu Ile Val Thr Pro Ala Thr Ile Leu Lys Glu Lys Pro Asp Pro Asn  
35 40 45

aat ctg gtt ttt gga act gtg ttc acg gat cat atg ctg acg gtg gag 193  
Asn Leu Val Phe Gly Thr Val Phe Thr Asp His Met Leu Thr Val Glu  
50 55 60

tgg tcc tca gag ttt gga tgg gag aaa cct cat atc aag cct ctt cag 241  
Trp Ser Ser Glu Phe Gly Trp Glu Lys Pro His Ile Lys Pro Leu Gln  
65 70 75 80

aac ctg tca ttg cac cct ggc tca tca gct ttg cac tat gca gtg gaa 289  
Asn Leu Ser Leu His Pro Gly Ser Ser Ala Leu His Tyr Ala Val Glu  
85 90 95

gta ttt gac aaa gaa gag ctc tta gag tgt att caa cag ctt gtg aaa 337  
Val Phe Asp Lys Glu Leu Leu Glu Cys Ile Gln Gln Leu Val Lys  
100 105 110

ttg gat caa gaa tgg gtc cca tat tca aca tct gct agt ctg tat att 385  
Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu Tyr Ile  
115 120 125

cgt cct aca ttc att gga act gag cct tct ctt gga gtc aag aag cct 433  
Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys Lys Pro  
130 135 140

acc aaa gcc ctg ctc ttt gta ctc ttg agc cca gtg gga cct tat ttt 481  
Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro Tyr Phe  
145 150 155 160

tca agt gga acc ttt aat cca gtg tcc ctg tgg gcc aat ccc aag tat 529  
Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro Lys Tyr  
165 170 175

gta aga gcc tgg aaa ggt gga act ggg gac tgc aag atg gga ggg aat Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly Gly Asn 180 185 190	577
tac ggc tca tct ctt ttt gcc caa tgt gaa gca gta gat aat ggg tgt Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn Gly Cys 195 200 205	625
cag cag gtc ctg tgg ctc tat gga gag gac cat cag atc act gaa gtg Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr Glu Val 210 215 220	673
gga act atg aat ctt ttt ctt tac tgg ata aat gaa gat gga gaa gaa Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly Glu Glu 225 230 235 240	721
gaa ctg gca act cct cca cta gat ggc atc att ctt cca gga gtg aca Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly Val Thr 245 250 255	769
agg cgg tgc att ctg gac ctg gca cat cag tgg ggt gaa ttt aag gtg Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe Lys Val 260 265 270	817
tca gag aga tac ctc acc atg gat gac ttg aca aca gcc ctg gag ggg Ser Glu Arg Tyr Leu Thr Met Asp Asp Leu Thr Thr Ala Leu Glu Gly 275 280 285	865
aac aga gtg aga gag atg ttt ggc tct ggt aca gca tgc ttt gtt tgc Asn Arg Val Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val Val Cys 290 295 300	913
cca gtt tct gat ata ctg tac aaa ggc gag aca ata cac att cca act Pro Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile Pro Thr 305 310 315 320	961
atg gag aat ggt cct aag ctg gca agc cgc atc ttg agc aaa tta act Met Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys Leu Thr 325 330 335	1009
gat atc cag tat gga aga gaa gag agc gac tgg aca att gtg cta tcc Asp Ile Gln Tyr Gly Arg Glu Ser Asp Trp Thr Ile Val Leu Ser 340 345 350	1057
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Asn	Leu	Val	Phe	Gly	Thr	Val	Phe	Thr	Asp	His	Met	Leu	Thr	Val	Glu
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Val	Phe	Asp	Lys	Glu	Glu	Leu	Leu	Glu	Cys	Ile	Gln	Gln	Leu	Val	Lys
			100				105					110			
Leu	Asp	Gln	Glu	Trp	Val	Pro	Tyr	Ser	Thr	Ser	Ala	Ser	Leu	Tyr	Ile
				115		120					125				
Arg	Pro	Thr	Phe	Ile	Gly	Thr	Glu	Pro	Ser	Leu	Gly	Val	Lys	Lys	Pro
				130		135					140				
Thr	Lys	Ala	Leu	Leu	Phe	Val	Leu	Leu	Ser	Pro	Val	Gly	Pro	Tyr	Phe
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Ser	Ser	Gly	Thr	Phe	Asn	Pro	Val	Ser	Leu	Trp	Ala	Asn	Pro	Lys	Tyr
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Val	Arg	Ala	Trp	Lys	Gly	Gly	Thr	Gly	Asp	Cys	Lys	Met	Gly	Gly	Asn
				180			185				190				
Tyr	Gly	Ser	Ser	Leu	Phe	Ala	Gln	Cys	Glu	Ala	Val	Asp	Asn	Gly	Cys
				195			200				205				
Gln	Gln	Val	Leu	Trp	Leu	Tyr	Gly	Glu	Asp	His	Gln	Ile	Thr	Glu	Val
				210		215				220					
Gly	Thr	Met	Asn	Leu	Phe	Leu	Tyr	Trp	Ile	Asn	Glu	Asp	Gly	Glu	Glu
			225		230			235				240			
Glu	Leu	Ala	Thr	Pro	Pro	Leu	Asp	Gly	Ile	Ile	Leu	Pro	Gly	Val	Thr
				245		250					255				
Arg	Arg	Cys	Ile	Leu	Asp	Leu	Ala	His	Gln	Trp	Gly	Glu	Phe	Lys	Val
				260			265				270				
Ser	Glu	Arg	Tyr	Leu	Thr	Met	Asp	Asp	Leu	Thr	Thr	Ala	Leu	Glu	Gly
				275			280				285				
Asn	Arg	Val	Arg	Glu	Met	Phe	Gly	Ser	Gly	Thr	Ala	Cys	Val	Val	Cys
				290			295				300				
Pro	Val	Ser	Asp	Ile	Leu	Tyr	Lys	Gly	Glu	Thr	Ile	His	Ile	Pro	Thr
				305		310			315				320		
Met	Glu	Asn	Gly	Pro	Lys	Leu	Ala	Ser	Arg	Ile	Leu	Ser	Lys	Leu	Thr
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 Cys Ser Asn Gly Cys Ser Ala Glu Cys Thr Gly Glu Gly Ser Lys  
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 Glu Val Val Gly Thr Phe Lys Ala Lys Asp Leu Ile Val Thr Pro Ala  
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 acc att tta aag gaa aaa cca gac ccc aat aat ctg gtt ttt gga act 680  
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 gtg ttc acg gat cat atg ctg acg gtg gag tgg tcc tca gag ttt gga 728  
 Val Phe Thr Asp His Met Leu Thr Val Glu Trp Ser Ser Glu Phe Gly  
 55 60 65  
  
 tgg gag aaa cct cat atc aag cct ctt cag aac ctg tca ttg cac cct 776  
 Trp Glu Lys Pro His Ile Lys Pro Leu Gln Asn Leu Ser Leu His Pro  
 70 75 80  
  
 ggc tca tca gct ttg cac tat gca gtg gaa tta ttt gaa gga ttg aag 824  
 Gly Ser Ser Ala Leu His Tyr Ala Val Glu Leu Phe Glu Gly Leu Lys  
 85 90 95

gca ttt cga gga gta gat aat aaa att cga ctg ttt cag cca aac ctc Ala Phe Arg Gly Val Asp Asn Lys Ile Arg Leu Phe Gln Pro Asn Leu	100                    105                    110                    115	872
aac atg gat aga atg tat cgc tct gct gtg agg gca act ctg ccg gta Asn Met Asp Arg Met Tyr Arg Ser Ala Val Arg Ala Thr Leu Pro Val	120                    125                    130	920
ttt gac aaa gaa gag ctc tta gag tgt att caa cag ctt gtg aaa ttg Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu Val Lys Leu	135                    140                    145	968
gat caa gaa tgg gtc cca tat tca aca tct gct agt ctg tat att cgt Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu Tyr Ile Arg	150                    155                    160	1016
cct aca ttc att gga act gag cct tct ctt gga gtc aag aag cct acc Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys Lys Pro Thr	165                    170                    175	1064
aaa gcc ctg ctc ttt gta ctc ttg agc cca gtg gga cct tat ttt tca Lys Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro Tyr Phe Ser	180                    185                    190                    195	1112
agt gga acc ttt aat cca gtg tcc ctg tgg gcc aat ccc aag tat gta Ser Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro Lys Tyr Val	200                    205                    210	1160
aga gcc tgg aaa ggt gga act ggg gac tgc aag atg gga ggg aat tac Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly Gly Asn Tyr	215                    220                    225	1208
ggc tca tct ctt ttt gcc caa tgt gaa gca gta gat aat ggg tgt cag Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn Gly Cys Gln	230                    235                    240	1256
cag gtc ctg tgg ctc tat gga gag gac cat cag atc act gaa gtg gga Gln Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr Glu Val Gly	245                    250                    255	1304
act atg aat ctt ttt ctt tac tgg ata aat gaa gat gga gaa gaa gaa Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly Glu Glu Glu	260                    265                    270                    275	1352
ctg gca act cct cca cta gat ggc atc att ctt cca gga gtg aca agg Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly Val Thr Arg	280                    285                    290	1400
cgg tgc att ctg gac ctg gca cat cag tgg ggt gaa ttt aag gtg tca Arg Cys Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe Lys Val Ser	295                    300                    305	1448
gag aga tac ctc acc atg gat gac ttg tca aca gcc ctg gag ggg aac Glu Arg Tyr Leu Thr Met Asp Asp Leu Ser Thr Ala Leu Glu Gly Asn	310                    315                    320	1496

aga gtg aga gag atg ttt ggc tct ggt aca gcc tgc tgc cca		1544	
Arg Val Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val Val Cys Pro			
325	330	335	
gtt tct gat ata ctg tac aaa ggc gag aca ata cac att cca act atg		1592	
Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile Pro Thr Met			
340	345	350	355
gag aat ggt cct aag ctg gca agc cgc atc ttg agc aaa tta act gat		1640	
Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys Leu Thr Asp			
360	365	370	
atc cag tat gga aga gaa gag agc gac tgg aca att gtg cta tcc		1685	
Ile Gln Tyr Gly Arg Glu Ser Asp Trp Thr Ile Val Leu Ser			
375	380	385	
tgaatgaaaa atagaggata caatgaaaa tagaggatac caactgtatg ctactggac	1745		
agactgttgc atttgaattt tgatagattt ctttggtcac ctgtgcataa tgttagttgt	1805		
agtatcaatg tttacaaga gtgattgttt cttcatgccca gagaaaatga attgcaatca	1865		
tcaaatggtg tttcataact tggtagtagt aacttacctt accttaccta gaaaaatatt	1925		
aatgtaagcc atataacatg ggatttcctt caatgattt agtgccctt tttgtacttc	1985		
actcagatac taaatagtag tttattctt aatataagtt acattctgct cctcaacc	2043		
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<212> PRT			
<213> Homo sapiens			
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Met Lys Asp Cys Ser Asn Gly Cys Ser Ala Glu Cys Thr Gly Glu Gly			
1	5	10	15
Gly Ser Lys Glu Val Val Gly Thr Phe Lys Ala Lys Asp Leu Ile Val			
20	25	30	
Thr Pro Ala Thr Ile Leu Lys Glu Lys Pro Asp Pro Asn Asn Leu Val			
35	40	45	
Phe Gly Thr Val Phe Thr Asp His Met Leu Thr Val Glu Trp Ser Ser			
50	55	60	
Glu Phe Gly Trp Glu Lys Pro His Ile Lys Pro Leu Gln Asn Leu Ser			
65	70	75	80
Leu His Pro Gly Ser Ser Ala Leu His Tyr Ala Val Glu Leu Phe Glu			
85	90	95	
Gly Leu Lys Ala Phe Arg Gly Val Asp Asn Lys Ile Arg Leu Phe Gln			
100	105	110	
Pro Asn Leu Asn Met Asp Arg Met Tyr Arg Ser Ala Val Arg Ala Thr			
115	120	125	

Leu Pro Val Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu  
 130 135 140

Val Lys Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu  
 145 150 155 160

Tyr Ile Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys  
 165 170 175

Lys Pro Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro  
 180 185 190

Tyr Phe Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro  
 195 200 205

Lys Tyr Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly  
 210 215 220

Gly Asn Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn  
 225 230 235 240

Gly Cys Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr  
 245 250 255

Glu Val Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly  
 260 265 270

Glu Glu Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly  
 275 280 285

Val Thr Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe  
 290 295 300

Lys Val Ser Glu Arg Tyr Leu Thr Met Asp Asp Leu Ser Thr Ala Leu  
 305 310 315 320

Glu Gly Asn Arg Val Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val  
 325 330 335

Val Cys Pro Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile  
 340 345 350

Pro Thr Met Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys  
 355 360 365

Leu Thr Asp Ile Gln Tyr Gly Arg Glu Glu Ser Asp Trp Thr Ile Val  
 370 375 380

Leu Ser  
 385

<210> 75  
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<222> (11)..(1168)

<400> 75

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1 5 10

gga gaa gga gga tca aaa gag gtg gtg ggg act ttt aag gct aaa gac 97  
Gly Glu Gly Gly Ser Lys Glu Val Val Gly Thr Phe Lys Ala Lys Asp  
15 20 25

cta ata gtc aca cca gct acc att tta aag gaa aaa cca gac ccc aat 145  
Leu Ile Val Thr Pro Ala Thr Ile Leu Lys Glu Lys Pro Asp Pro Asn  
30 35 40 45

aat ctg gtt ttt gga act gtg ttc acg gat cat atg ctg acg gtg gag 193  
Asn Leu Val Phe Gly Thr Val Phe Thr Asp His Met Leu Thr Val Glu  
50 55 60

tgg tcc tca gag ttt gga tgg gag aaa cct cat atc aag cct ctt cag 241  
Trp Ser Ser Glu Phe Gly Trp Glu Lys Pro His Ile Lys Pro Leu Gln  
65 70 75

aac ctg tca ttg cac cct ggc tca tca gct ttg cac tat gca gtg gaa 289  
Asn Leu Ser Leu His Pro Gly Ser Ser Ala Leu His Tyr Ala Val Glu  
80 85 90

tta ttt gaa gga ttg aag gca ttt cga gga gta gat aat aaa att cga 337  
Leu Phe Glu Gly Leu Lys Ala Phe Arg Gly Val Asp Asn Lys Ile Arg  
95 100 105

ctg ttt cag cca aac ctc aac atg gat aga atg tat cgc tct gct gtg 385  
Leu Phe Gln Pro Asn Leu Asn Met Asp Arg Met Tyr Arg Ser Ala Val  
110 115 120 125

agg gca act ctg ccg gta ttt gac aaa gaa gag ctc tta gag tgt att 433  
Arg Ala Thr Leu Pro Val Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile  
130 135 140

caa cag ctt gtg aaa ttg gat caa gaa tgg gtc cca tat tca aca tct 481  
Gln Gln Leu Val Lys Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser  
145 150 155

gct agt ctg tat att cgt cct aca ttc att gga act gag cct tct ctt 529  
Ala Ser Leu Tyr Ile Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu  
160 165 170

gga gtc aag aag cct acc aaa gcc ctg ctc ttt gta ctc ttg agc cca 577  
Gly Val Lys Lys Pro Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro  
175 180 185

gtg gga cct tat ttt tca agt gga acc ttt aat cca gtg tcc ctg tgg 625  
Val Gly Pro Tyr Phe Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp  
190 195 200 205

gcc aat ccc aag tat gta aga gcc tgg aaa ggt gga act ggg gac tgc Ala Asn Pro Lys Tyr Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys 210	215	220	673	
aag atg gga ggg aat tac ggc tca tct ctt gcc caa tgt gaa gca Lys Met Gly Gly Asn Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala 225	230	235	721	
gta gat aat ggg tgt cag cag gtc ctg tgg ctc tat gga gag gac cat Val Asp Asn Gly Cys Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His 240	245	250	769	
cag atc act gaa gtg gga act atg aat ctt ttt ctt tac tgg ata aat Gln Ile Thr Glu Val Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn 255	260	265	817	
gaa gat gga gaa gaa gaa ctg gca act cct cca cta gat ggc atc att Glu Asp Gly Glu Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile 270	275	280	285	865
ctt cca gga gtg aca agg cgg tgc att ctg gac ctg gca cat cag tgg Leu Pro Gly Val Thr Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp 290	295	300	913	
ggt gaa ttt aag gtg tca gag aga tac ctc acc atg gat gac ttg aca Gly Glu Phe Lys Val Ser Glu Arg Tyr Leu Thr Met Asp Asp Leu Thr 305	310	315	961	
aca gcc ctg gag ggg aac aga gtg aga gag atg ttt ggc tct ggt aca Thr Ala Leu Glu Gly Asn Arg Val Arg Glu Met Phe Gly Ser Gly Thr 320	325	330	1009	
gcc tgt gtt tgc cca gtt tct gat ata ctg tac aaa ggc gag aca Ala Cys Val Val Cys Pro Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr 335	340	345	1057	
ata cac att cca act atg gag aat ggt cct aag ctg gca agc cgc atc Ile His Ile Pro Thr Met Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile 350	355	360	365	1105
ttg agc aaa tta act gat atc cag tat gga aga gaa gag agc gac tgg Leu Ser Lys Leu Thr Asp Ile Gln Tyr Gly Arg Glu Ser Asp Trp 370	375	380	1153	
aca att gtg cta tcc gtcgacggc Thr Ile Val Leu Ser 385			1177	
<210> 76				
<211> 386				
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Gly Ser Lys Glu Val Val Gly Thr Phe Lys Ala Lys Asp Leu Ile Val  
           20                     25                     30  
  
 Thr Pro Ala Thr Ile Leu Lys Glu Lys Pro Asp Pro Asn Asn Leu Val  
           35                     40                     45  
  
 Phe Gly Thr Val Phe Thr Asp His Met Leu Thr Val Glu Trp Ser Ser  
           50                     55                     60  
  
 Glu Phe Gly Trp Glu Lys Pro His Ile Lys Pro Leu Gln Asn Leu Ser  
   65                     70                     75                     80  
  
 Leu His Pro Gly Ser Ser Ala Leu His Tyr Ala Val Glu Leu Phe Glu  
           85                     90                     95  
  
 Gly Leu Lys Ala Phe Arg Gly Val Asp Asn Lys Ile Arg Leu Phe Gln  
           100                    105                     110  
  
 Pro Asn Leu Asn Met Asp Arg Met Tyr Arg Ser Ala Val Arg Ala Thr  
           115                    120                     125  
  
 Leu Pro Val Phe Asp Lys Glu Glu Leu Leu Glu Cys Ile Gln Gln Leu  
   130                     135                     140  
  
 Val Lys Leu Asp Gln Glu Trp Val Pro Tyr Ser Thr Ser Ala Ser Leu  
   145                     150                     155                     160  
  
 Tyr Ile Arg Pro Thr Phe Ile Gly Thr Glu Pro Ser Leu Gly Val Lys  
           165                    170                     175  
  
 Lys Pro Thr Lys Ala Leu Leu Phe Val Leu Leu Ser Pro Val Gly Pro  
           180                    185                     190  
  
 Tyr Phe Ser Ser Gly Thr Phe Asn Pro Val Ser Leu Trp Ala Asn Pro  
           195                    200                     205  
  
 Lys Tyr Val Arg Ala Trp Lys Gly Gly Thr Gly Asp Cys Lys Met Gly  
   210                     215                     220  
  
 Gly Asn Tyr Gly Ser Ser Leu Phe Ala Gln Cys Glu Ala Val Asp Asn  
   225                     230                     235                     240  
  
 Gly Cys Gln Gln Val Leu Trp Leu Tyr Gly Glu Asp His Gln Ile Thr  
           245                    250                     255  
  
 Glu Val Gly Thr Met Asn Leu Phe Leu Tyr Trp Ile Asn Glu Asp Gly  
           260                    265                     270  
  
 Glu Glu Glu Leu Ala Thr Pro Pro Leu Asp Gly Ile Ile Leu Pro Gly  
           275                    280                     285  
  
 Val Thr Arg Arg Cys Ile Leu Asp Leu Ala His Gln Trp Gly Glu Phe  
           290                    295                     300  
  
 Lys Val Ser Glu Arg Tyr Leu Thr Met Asp Asp Leu Thr Thr Ala Leu  
   305                     310                     315                     320

Glu Gly Asn Arg Val Arg Glu Met Phe Gly Ser Gly Thr Ala Cys Val  
325 330 335

Val Cys Pro Val Ser Asp Ile Leu Tyr Lys Gly Glu Thr Ile His Ile  
340 345 350

Pro Thr Met Glu Asn Gly Pro Lys Leu Ala Ser Arg Ile Leu Ser Lys  
355 360 365

Leu Thr Asp Ile Gln Tyr Gly Arg Glu Glu Ser Asp Trp Thr Ile Val  
370 375 380

Leu Ser  
385

<210> 77  
<211> 1057  
<212> DNA  
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<220>  
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<222> (11)..(1048)

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Met Tyr Asn Gly Ser Cys Cys Arg Ile Glu Gly Asp Thr  
1 5 10

atc tcc cag gtg atg ccg ccg ctg ctc att gtg gcc ttt gtg ctg ggc 97  
Ile Ser Gln Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly  
15 20 25

gca cta ggc aat ggg gtc gcc ctg tgt ggt ttc tgc ttc cac atg aag 145  
Ala Leu Gly Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys  
30 35 40 45

acc tgg aag ccc agc act gtt tac ctt ttc aat ttg gcc gtg gct gat 193  
Thr Trp Lys Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp  
50 55 60

ttc ctc ctt atg atc tgc ctg cct ttt cgg aca gac tat tac ctc aga 241  
Phe Leu Leu Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg  
65 70 75

cgt aga cac tgg gct ttt ggg gac att ccc tgc cga gtg ggg ctc ttc 289  
Arg Arg His Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe  
80 85 90

acg ttg gcc atg aac agg gcc ggg agc atc gtg ttc ctt acg gtg gtg 337  
Thr Leu Ala Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val  
95 100 105

gct gcg gac agg tat ttc aaa gtg gtc cac ccc cac cac gcg gtg aac 385  
Ala Ala Asp Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn  
110 115 120 125

act atc tcc acc cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg gcc		433	
Thr Ile Ser Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala			
130	135	140	
ctg gtc atc ctg gga aca gtg tat ctt ttg ctg gag aac cat ctc tgc		481	
Leu Val Ile Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys			
145	150	155	
gtg caa gag acg gcc gtc tcc tgt gag agc ttc atc atg gag tcg gcc		529	
Val Gln Glu Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala			
160	165	170	
aat ggc tgg cat gac atc atg ttc cag ctg gag ttc ttt atg ccc ctc		577	
Asn Gly Trp His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu			
175	180	185	
ggc atc atc tta ttt tgc tcc ttc aag att gtt tgg agc ctg agg cgg		625	
Gly Ile Ile Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg			
190	195	200	205
agg cag cag ctg gcc aga cag gct cgg atg aag aag gcg acc cgg ttc		673	
Arg Gln Gln Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe			
210	215	220	
atc atg gtg gtg gca att gtg ttc atc aca tgc tac ctg ccc agc gtg		721	
Ile Met Val Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val			
225	230	235	
tct gct aga ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat		769	
Ser Ala Arg Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp			
240	245	250	
ccc tct gtc cat ggg gcc ctg cac ata acc ctc agc ttc acc tac atg		817	
Pro Ser Val His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met			
255	260	265	
aac agc atg ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt		865	
Asn Ser Met Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe			
270	275	280	285
ccc aaa ttc tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag		913	
Pro Lys Phe Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln			
290	295	300	
cca gga cac tca aaa aca caa agg ccg gaa gag atg cca att tcg aac		961	
Pro Gly His Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn			
305	310	315	
ctc ggt cgcc agg agt tgc atc agt gtg gca aat agt ttc caa agc cag		1009	
Leu Gly Arg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln			
320	325	330	
tct gat ggg caa tgg gat ccc cac att gtt gag tgg cac aagcttggc		1057	
Ser Asp Gly Gln Trp Asp Pro His Ile Val Glu Trp His			
335	340	345	

<211> 346  
 <212> PRT  
 <213> Homo sapiens

<400> 78  
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Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Gly  
     20                 25                 30

Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys  
     35                 40                 45

Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu  
     50                 55                 60

Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His  
     65                 70                 75                 80

Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala  
     85                 90                 95

Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Asp  
     100                105                110

Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser  
     115                120                125

Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile  
     130                135                140

Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys Val Gln Glu  
     145                150                155                160

Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp  
     165                170                175

His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile  
     180                185                190

Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Gln Gln  
     195                200                205

Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val  
     210                215                220

Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg  
     225                230                235                240

Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val  
     245                250                255

His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
     260                265                270

Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe

275

280

285

Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His  
 290                    295                    300

Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg  
 305                    310                    315                    320

Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly  
 325                    330                    335

Gln Trp Asp Pro His Ile Val Glu Trp His  
 340                    345

&lt;210&gt; 79

&lt;211&gt; 961

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (2)..(961)

&lt;400&gt; 79

c acc tcg cga aat ggg gtc gcc ctg tgt ggt ttc tgc ttc cac atg aag 49  
 Thr Ser Arg Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys  
 1                    5                    10                    15

acc tgg aag ccc agc act gtt tac ctt ttc aat ttg gcc gtg gct gat 97  
 Thr Trp Lys Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp  
 20                    25                    30

ttc ctc ctt atg atc tgc ctg cct ttt cgg aca gac tat tac ctc aga 145  
 Phe Leu Leu Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg  
 35                    40                    45

cgt aga cac tgg gct ttt ggg gac att ccc tgc cga gtg ggg ctc ttc 193  
 Arg Arg His Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe  
 50                    55                    60

acg ttg gcc atg aac agg gcc ggg agc atc gtg ttc ctt acg gtg gtg 241  
 Thr Leu Ala Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val  
 65                    70                    75                    80

gct gcg gac agg tat ttc aaa gtg gtc cac ccc cac cac gcg gtg aac 289  
 Ala Ala Asp Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn  
 85                    90                    95

act atc tcc acc cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg gcc 337  
 Thr Ile Ser Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala  
 100                    105                    110

ctg gtc atc ctg gga aca gtg tat ctt ttg ctg gag aac cat ctc tgc 385  
 Leu Val Ile Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys  
 115                    120                    125

gtg caa gag acg gcc gtc tcc tgt gag agc ttc atc atg gag tcg gcc 433

Val Gln Glu Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala				
130	135	140		
aat ggc tgg cat gac atc atg ttc cag ctg gag ttc ttt atg ccc ctc				481
Asn Gly Trp His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu				
145	150	155	160	
ggc atc atc tta ttt tgc tcc ttc aag att gtt tgg agc ctg agg cgg				529
Gly Ile Ile Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg				
165	170	175		
agg cag cag ctg gcc aga cag gct cggt atg aag aag gcg acc cgg ttc				577
Arg Gln Gln Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe				
180	185	190		
atc atg gtg gtg gca att gtg ttc atc aca tgc tac ctg ccc agc gtg				625
Ile Met Val Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val				
195	200	205		
tct gct aga ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat				673
Ser Ala Arg Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp				
210	215	220		
ccc tct gtc cat ggg gcc ctg cac ata acc ctc agc ttc acc tac atg				721
Pro Ser Val His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met				
225	230	235	240	
aac agc atg ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt				769
Asn Ser Met Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe				
245	250	255		
ccc aaa ttc tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag				817
Pro Lys Phe Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln				
260	265	270		
cca gga cac tca aaa aca caa agg ccg gaa gag atg cca att tcg aac				865
Pro Gly His Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn				
275	280	285		
ctc ggt cgc agg agt tgc atc agt gtg gca aat agt ttccaa agc cag				913
Leu Gly Arg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln				
290	295	300		
tct gat ggg caa tgg gat ccc cac att gtt gag tgg cac gtc gac ggc				961
Ser Asp Gly Gln Trp Asp Pro His Ile Val Glu Trp His Val Asp Gly				
305	310	315	320	
<210> 80				
<211> 320				
<212> PRT				
<213> Homo sapiens				
<400> 80				
Thr Ser Arg Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys				
1	5	10	15	
Thr Trp Lys Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp				

20

25

30

Phe	Leu	Leu	Met	Ile	Cys	Leu	Pro	Phe	Arg	Thr	Asp	Tyr	Tyr	Leu	Arg
35							40					45			
Arg	Arg	His	Trp	Ala	Phe	Gly	Asp	Ile	Pro	Cys	Arg	Val	Gly	Leu	Phe
50							55					60			
Thr	Leu	Ala	Met	Asn	Arg	Ala	Gly	Ser	Ile	Val	Phe	Leu	Thr	Val	Val
65								70				75			80
Ala	Ala	Asp	Arg	Tyr	Phe	Lys	Val	Val	His	Pro	His	His	Ala	Val	Asn
85								90				95			
Thr	Ile	Ser	Thr	Arg	Val	Ala	Ala	Gly	Ile	Val	Cys	Thr	Leu	Trp	Ala
100								105					110		
Leu	Val	Ile	Leu	Gly	Thr	Val	Tyr	Leu	Leu	Leu	Glu	Asn	His	Leu	Cys
115							120					125			
Val	Gln	Glu	Thr	Ala	Val	Ser	Cys	Glu	Ser	Phe	Ile	Met	Glu	Ser	Ala
130							135					140			
Asn	Gly	Trp	His	Asp	Ile	Met	Phe	Gln	Leu	Glu	Phe	Phe	Met	Pro	Leu
145							150					155			160
Gly	Ile	Ile	Leu	Phe	Cys	Ser	Phe	Lys	Ile	Val	Trp	Ser	Leu	Arg	Arg
165							170					175			
Arg	Gln	Gln	Leu	Ala	Arg	Gln	Ala	Arg	Met	Lys	Lys	Ala	Thr	Arg	Phe
180							185					190			
Ile	Met	Val	Val	Ala	Ile	Val	Phe	Ile	Thr	Cys	Tyr	Leu	Pro	Ser	Val
195							200					205			
Ser	Ala	Arg	Leu	Tyr	Phe	Leu	Trp	Thr	Val	Pro	Ser	Ser	Ala	Cys	Asp
210							215					220			
Pro	Ser	Val	His	Gly	Ala	Leu	His	Ile	Thr	Leu	Ser	Phe	Thr	Tyr	Met
225							230					235			240
Asn	Ser	Met	Leu	Asp	Pro	Leu	Val	Tyr	Tyr	Phe	Ser	Ser	Pro	Ser	Phe
245								250					255		
Pro	Lys	Phe	Tyr	Asn	Lys	Leu	Lys	Ile	Cys	Ser	Leu	Lys	Pro	Lys	Gln
260							265					270			
Pro	Gly	His	Ser	Lys	Thr	Gln	Arg	Pro	Glu	Glu	Met	Pro	Ile	Ser	Asn
275							280					285			
Leu	Gly	Arg	Arg	Ser	Cys	Ile	Ser	Val	Ala	Asn	Ser	Phe	Gln	Ser	Gln
290							295					300			
Ser	Asp	Gly	Gln	Trp	Asp	Pro	His	Ile	Val	Glu	Trp	His	Val	Asp	Gly
305							310					315			320

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 cag gtg atg ccg ccg ctg ctc att gtg gcc ttt gtg ctg ggc gca cta 98  
     Gln Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu  
     20                       25                       30  
  
 ggc aat ggg gtc gcc ctg tgt ggt ttc tgc ttc cac atg aag acc tgg 146  
     Gly Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp  
     35                       40                       45  
  
 aag ccc agc act gtt tac ctt ttc aat ttg gcc gtg gct gat ttc ctc 194  
     Lys Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu  
     50                       55                       60  
  
 ctt atg atc tgc ctg cct ttt cgg aca gac tat tac ctc aga cgt aga 242  
     Leu Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg  
     65                       70                       75  
  
 cac tgg gct ttt ggg gac att ccc tgc cga gtg ggg ctc ttc acg ttg 290  
     His Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu  
     80                       85                       90                       95  
  
 gcc atg aac agg gcc ggg agc atc gtg ttc ctt acg gtg gtc gct gcg 338  
     Ala Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala  
     100                       105                       110  
  
 gac agg tat ttc aaa gtg gtc cac ccc cac cac gcg gtg aac act atc 386  
     Asp Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile  
     115                       120                       125  
  
 tcc acc cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg gcc ctg gtc 434  
     Ser Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val  
     130                       135                       140  
  
 atc ctg gga aca gtg tat ctt ttg ctg gag aac cat ctc tgc gtg caa 482  
     Ile Leu Gly Thr Val Tyr Leu Leu Glu Asn His Leu Cys Val Gln  
     145                       150                       155  
  
 gag acg gcc gtc tcc tgt gag agc ttc atc atg gag tcg gcc aat ggc 530  
     Glu Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly  
     160                       165                       170                       175  
  
 tgg cat gac atc atg ttc cag ctg gag ttc ttt atg ccc ctc ggc atc 578  
     Trp His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile  
     180                       185                       190

atc tta ttt tgc tcc ttc aag att gtt tgg agc ctg agg cgg agg agg cag Ile Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Arg Gln	195	200	205	626
cag ctg gcc aga cag gct cggtt atg aag aag gcg acc cgg ttc atc atg Gln Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met	210	215	220	674
gtg gtg gca att gtg ttc atc aca tgc tac ctg ccc agc gtg tct gct Val Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala	225	230	235	722
aga ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat ccc tct Arg Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser	240	245	250	255
gtc cat ggg gcc ctg cac ata acc ctc agc ttc acc tac atg aac agc Val His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser	260	265	270	818
atg ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt ccc aaa Met Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys	275	280	285	866
tac tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag cca gga Phe Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly	290	295	300	914
cac tca aaa aca caa agg ccg gaa gag atg cca att tcg aac ctc ggt His Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly	305	310	315	962
cgc agg agt tgc atc agt gtg gca aat agt ttc caa agc cag tct gat Arg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp	320	325	330	1010
335				
ggg caa tgg gat ccc cac att gtt gag tgg cac tgaacaa Gly Gln Trp Asp Pro His Ile Val Glu Trp His	340	345		1050
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Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Gly	20	25	30	
Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys	35	40	45	
Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu	50	55	60	

Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His  
 65                    70                    75                    80  
  
 Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala  
 85                    90                    95  
  
 Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Asp  
 100                    105                    110  
  
 Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser  
 115                    120                    125  
  
 Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile  
 130                    135                    140  
  
 Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys Val Gln Glu  
 145                    150                    155                    160  
  
 Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp  
 165                    170                    175  
  
 His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile  
 180                    185                    190  
  
 Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Gln Gln  
 195                    200                    205  
  
 Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val  
 210                    215                    220  
  
 Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg  
 225                    230                    235                    240  
  
 Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val  
 245                    250                    255  
  
 His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
 260                    265                    270  
  
 Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe  
 275                    280                    285  
  
 Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His  
 290                    295                    300  
  
 Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg  
 305                    310                    315                    320  
  
 Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly  
 325                    330                    335  
  
 Gln Trp Asp Pro His Ile Val Glu Trp His  
 340                    345  
  
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Met Tyr Asn Gly Ser Cys Cys Arg Ile Glu Gly Asp Thr Ile Ser Gln	
1 5 10 15	
gtg atg ccg ccg ctg ctc att gtg gcc ttt gtg ctg ggc gca cta ggc	155
Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Gly	
20 25 30	
aat ggg gtc gcc ctg tgt ggt ttc tgc ttc cac atg aag acc tgg aag	203
Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys	
35 40 45	
ccc agc act gtt tac ctt ttc aat ttg gcc gtg gct gat ttc ctc ctt	251
Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu	
50 55 60	
atg atc tgc ctg cct ttt cgg aca gac tat tac ctc aga cgt aga cac	299
Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His	
65 70 75 80	
tgg gct ttt ggg gac att ccc tgc cga gtg ggg ctc ttc acg ttg gcc	347
Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala	
85 90 95	
atg aac agg gcc ggg agc atc gtg ttc ctt acg gtg gtg gct gcg ggc	395
Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Gly	
100 105 110	
agg tat ttc aaa gtg gtc cac ccc cac cac gcg gtg aac act atc tcc	443
Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser	
115 120 125	
acc cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg gcc ctg gtc atc	491
Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile	
130 135 140	
ctg gga aca gtg tat ctt ttg ctg gag aac cat ctc tgc gtg caa gag	539
Leu Gly Thr Val Tyr Leu Leu Glu Asn His Leu Cys Val Gln Glu	
145 150 155 160	
acg gcc gtc tcc tgt gag agc ttc atc atg gag tcg gcc aat ggc tgg	587
Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp	
165 170 175	
cat gac atc atg ttc cag ctg gag ttc ttt atg ccc ctc ggc atc atc	635
His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile	
180 185 190	

tta ttt tgc tcc ttc aag att gtt tgg agc ctg agg cgg agg cag cag		683
Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Arg Gln Gln		
195	200	205
ctg gcc aga cag gct cggtatg aag aag gcg acc cgg ttc atc atg gtg		731
Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val		
210	215	220
gtg gca att gtg ttc atc aca tgc tac ctg ccc agc gtg tct gct aga		779
Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg		
225	230	235
240		
ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat ccc tct gtc		827
Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val		
245	250	255
cat ggg gcc ctg cac ata acc ctc agc ttc acc tac atg aac agc atg		875
His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met		
260	265	270
ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt ccc aaa ttc		923
Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe		
275	280	285
tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag cca gga cac		971
Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His		
290	295	300
tca aaa aca caa agg ccg gaa gag atg cca att tcg aac ctc ggt cgc		1019
Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg		
305	310	315
320		
agg agt tgc atc agt gtg gca aat agt ttc caa agc cag tct gat ggg		1067
Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly		
325	330	335
caa tgg gat ccc cac att gtt gag tgg cac tgaacaa		1104
Gln Trp Asp Pro His Ile Val Glu Trp His		
340	345	
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1	5	10
15		
Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Gly		
20	25	30
Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys		
35	40	45
Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu		

50	55	60
Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr		Leu Arg Arg Arg His
65	70	75
80		
Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly	Leu Phe Thr Leu Ala	
85	90	95
Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Gly		
100	105	110
Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser		
115	120	125
Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile		
130	135	140
Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys Val Gln Glu		
145	150	155
160		
Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp		
165	170	175
His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile		
180	185	190
Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Gln Gln		
195	200	205
Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val		
210	215	220
Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg		
225	230	235
240		
Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val		
245	250	255
His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met		
260	265	270
Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe		
275	280	285
Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His		
290	295	300
Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg		
305	310	315
320		
Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly		
325	330	335
Gln Trp Asp Pro His Ile Val Glu Trp His		
340	345	

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1	5	10	15

gtg atg ccg ccg ctg ctc att gtg gcc ttt gtg ctg ggc gca cta gac	Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Asp	155
20	25	30

aat ggg gtc gcc ctg tgt ggt ttc tgc ttc cac atg aag acc tgg aag	Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys	203
35	40	45

ccc agc act gtt tac ctt ttc aat ttg gcc gtg gct gat ttc ctc ctt	Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu	251
50	55	60

atg atc tgc ctg cct ttt cgg aca gac tat tac ctc aga cgt aga cac	Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His	299	
65	70	75	80

tgg gct ttt ggg gac att ccc tgc cga gtg ggg ctc ttc acg ttg gcc	Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala	347
85	90	95

atg aac agg gcc ggg agc atc gtg ttc ctt acg gtg gtc gct gcg ggc	Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Gly	395
100	105	110

agg tat ttc aaa gtg gtc cac ccc cac cac gcg gtg aac act atc tcc	Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser	443
115	120	125

acc cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg gcc ctg gtc atc	Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile	491
130	135	140

ctg gga aca gtg tat ctt ttg ctg gag aac cat ctc tgc gtg caa gag	Leu Gly Thr Val Tyr Leu Leu Glu Asn His Leu Cys Val Gln Glu	539	
145	150	155	160

acg gcc gtc tcc tgt gag agc ttc atc atg gag tcg gcc aat ggc tgg	Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp	587
165	170	175

cat gac atc atg ttc cag ctg gag ttc ttt atg ccc ctc ggc atc atc	His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile	635
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180	185	190	
tta ttt tgc tcc ttc aag att gtt tgg agc ctg agg cgg agg cag cag Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Arg Gln Gln 195	200	205	683
ctg gcc aga cag gct cggtatg aag aag gcg acc cgg ttc atc atg gtg Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val 210	215	220	731
gtg gca att gtg ttc atc aca tgc tac ctg ccc agc gtg tct gct aga Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg 225	230	235	779
ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat ccc tct gtc Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val 245	250	255	827
cat ggg gcc ctg cac ata acc ctc agc ttc acc tac atg aac agc atg His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met 260	265	270	875
ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt ccc aaa ttc Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe 275	280	285	923
tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag cca gga cac Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His 290	295	300	971
tca aaa aca caa agg ccg gaa gag atg cca att tcg aac ctc ggt cgc Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg 305	310	315	1019
agg agt tgc atc agt gtg gca aat agt ttc caa agc cag tct gat ggg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly 325	330	335	1067
caa tgg gat ccc cac att gtt gag tgg cac tgaacaa Gln Trp Asp Pro His Ile Val Glu Trp His 340	345		1104
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Met Tyr Asn Gly Ser Cys Cys Arg Ile Glu Gly Asp Thr Ile Ser Gln 1	5	10	15
Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Asp 20	25	30	
Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys 35	40	45	

Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu  
       50                         55                         60  
  
 Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His  
       65                         70                         75                         80  
  
 Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala  
       85                         90                         95  
  
 Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Gly  
       100                        105                        110  
  
 Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser  
       115                        120                        125  
  
 Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile  
       130                        135                        140  
  
 Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys Val Gln Glu  
       145                        150                        155                        160  
  
 Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp  
       165                        170                        175  
  
 His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile  
       180                        185                        190  
  
 Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Arg Gln Gln  
       195                        200                        205  
  
 Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val  
       210                        215                        220  
  
 Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg  
       225                        230                        235                        240  
  
 Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val  
       245                        250                        255  
  
 His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
       260                        265                        270  
  
 Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe  
       275                        280                        285  
  
 Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His  
       290                        295                        300  
  
 Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg  
       305                        310                        315                        320  
  
 Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly  
       325                        330                        335  
  
 Gln Trp Asp Pro His Ile Val Glu Trp His  
       340                        345

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	Asn	Gly	Val	Ala	Leu	Cys	Gly	Phe	Cys	Phe	His	Met	Lys			
1					5						10					
acc	tgg	aag	ccc	agg	act	gtt	tac	ctt	ttc	aat	ttg	gcc	gtg	gct	gat	97
Thr	Trp	Lys	Pro	Ser	Thr	Val	Tyr	Leu	Phe	Asn	Leu	Ala	Val	Ala	Asp	
15					20						25					
ttc	ctc	ctt	atg	atc	tgc	ctg	cct	ttt	cg	aca	gac	tat	tac	ctc	aga	145
Phe	Leu	Leu	Met	Ile	Cys	Leu	Pro	Phe	Arg	Thr	Asp	Tyr	Tyr	Leu	Arg	
30				35					40						45	
cgt	aga	cac	tgg	gct	ttt	ggg	gac	att	ccc	tgc	cga	gtg	ggg	ctc	ttc	193
Arg	Arg	His	Trp	Ala	Phe	Gly	Asp	Ile	Pro	Cys	Arg	Val	Gly	Leu	Phe	
				50				55				60				
acg	ttg	gcc	atg	aac	agg	gcc	ggg	agc	atc	gtg	ttc	ctt	acg	gtg	gtg	241
Thr	Leu	Ala	Met	Asn	Arg	Ala	Gly	Ser	Ile	Val	Phe	Leu	Thr	Val	Val	
				65				70					75			
gct	gcg	gac	agg	tat	ttc	aaa	gtg	gtc	cac	ccc	cac	gac	gac	gtg	aac	289
Ala	Ala	Asp	Arg	Tyr	Phe	Lys	Val	Val	His	Pro	His	His	Ala	Val	Asn	
				80			85					90				
act	atc	tcc	acc	cg	gt	g	g	ct	atc	gt	tc	ac	ct	tg	gg	337
Thr	Ile	Ser	Thr	Arg	Val	Ala	Ala	Gly	Ile	Val	Cys	Thr	Leu	Trp	Ala	
				95			100				105					
ctg	gtc	atc	ctg	gga	aca	gt	tat	ctt	ttg	ctg	gag	aa	ca	ct	tg	385
Leu	Val	Ile	Leu	Gly	Thr	Val	Tyr	Leu	Leu	Leu	Glu	Asn	His	Leu	Cys	
				110			115			120			125			
gtg	caa	gag	acg	gcc	gtc	tcc	tgt	gag	agc	ttc	atc	atg	gag	tcg	gcc	433
Val	Gln	Glu	Thr	Ala	Val	Ser	Cys	Glu	Ser	Phe	Ile	Met	Glu	Ser	Ala	
				130				135				140				
aat	ggc	tgg	cat	gac	atc	atg	ttc	cag	ctg	gag	ttc	ttt	atg	ccc	ctc	481
Asn	Gly	Trp	His	Asp	Ile	Met	Phe	Gln	Leu	Glu	Phe	Phe	Met	Pro	Leu	
				145			150					155				
ggc	atc	atc	tta	ttt	tgc	tcc	ttc	aag	att	gtt	tgg	agc	ctg	agg	cgg	529
Gly	Ile	Ile	Leu	Phe	Cys	Ser	Phe	Lys	Ile	Val	Trp	Ser	Leu	Arg	Arg	
				160			165			170						
agg	cag	cag	ctg	gcc	aga	cag	gct	cgg	atg	aag	aag	g	acc	cgg	ttc	577
Arg	Gln	Gln	Leu	Ala	Arg	Gln	Ala	Arg	Met	Lys	Lys	Ala	Thr	Arg	Phe	
				175			180				185					

atc atg gtg gtc att gtg ttc atc aca tgc tac ctg ccc agc gtg 625  
 Ile Met Val Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val  
 190 195 200 205  
  
 tct gct aga ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat 673  
 Ser Ala Arg Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp  
 210 215 220  
  
 ccc tct gtc cat ggg gcc ctg cac ata acc ctc agc ttc acc tac atg 721  
 Pro Ser Val His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met  
 225 230 235  
  
 aac agc atg ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt 769  
 Asn Ser Met Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe  
 240 245 250  
  
 ccc aaa ttc tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag 817  
 Pro Lys Phe Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln  
 255 260 265  
  
 cca gga cac tca aaa aca caa agg ccg gaa gag atg cca att tcg aac 865  
 Pro Gly His Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn  
 270 275 280 285  
  
 ctc ggt cgc agg agt tgc atc agt gtg gca aat agt ttc caa agc cag 913  
 Leu Gly Arg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln  
 290 295 300  
  
 tct gat ggg caa tgg gat ccc cac att gtt gag tgg cac aagcttggc 961  
 Ser Asp Gly Gln Trp Asp Pro His Ile Val Glu Trp His  
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 20 25 30  
  
 Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His  
 35 40 45  
  
 Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala  
 50 55 60  
  
 Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Asp  
 65 70 75 80  
  
 Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser  
 85 90 95

Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile  
100 105 110

Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys Val Gln Glu  
115 120 125

Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp  
130 135 140

His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile  
145 150 155 160

Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Arg Gln Gln  
165 170 175

Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val  
180 185 190

Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg  
195 200 205

Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val  
210 215 220

His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
225 230 235 240

Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe  
245 250 255

Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His  
260 265 270

Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg  
275 280 285

Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly  
290 295 300

Gln Trp Asp Pro His Ile Val Glu Trp His  
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Met Tyr Asn Gly Ser Cys Cys Arg Ile Glu Gly Asp  
1 5 10

acc atc tcc cag gtg atg ccg ccg ctg ctc att gtg gcc ttt gtg ctg

49

97

Thr Ile Ser Gln Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu			
15	20	25	
ggc gca cta ggc aat ggg gtc gcc ctg tgt ggt ttc tgc ttc cac atg			145
Gly Ala Leu Gly Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met			
30	35	40	
aag acc tgg aag ccc agc act gtt tac ctt ttc aat ttg gcc gtg gct			193
Lys Thr Trp Lys Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala			
45	50	55	60
gat ttc ctc ctt atg atc tgc ctg cct ttt cgg aca gac tat tac ctc			241
Asp Phe Leu Leu Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu			
65	70	75	
aga cgt aga cac tgg gct ttt ggg gac att ccc tgc cga gtg ggg ctc			289
Arg Arg Arg His Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu			
80	85	90	
ttc acg ttg gcc atg aac agg gcc ggg agc atc gtg ttc ctt acg gtg			337
Phe Thr Leu Ala Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val			
95	100	105	
gtg gct gcg gac agg tat ttc aaa gtg gtc cac ccc cac cac gcg gtg			385
Val Ala Ala Asp Arg Tyr Phe Lys Val Val His Pro His His Ala Val			
110	115	120	
aac act atc tcc acc cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg			433
Asn Thr Ile Ser Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp			
125	130	135	140
gcc ctg gtc atc ctg gga aca gtg tat ctt ttg ctg gag aac cat ctc			481
Ala Leu Val Ile Leu Gly Thr Val Tyr Leu Leu Glu Asn His Leu			
145	150	155	
tgc gtg caa gag acg gcc gtc tcc tgt gag agc ttc atc atg gag tcg			529
Cys Val Gln Glu Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser			
160	165	170	
gcc aat ggc tgg cat gac atc atg ttc cag ctg gag ttc ttt atg ccc			577
Ala Asn Gly Trp His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro			
175	180	185	
ctc ggc atc atc tta ttt tgc tcc ttc aag att gtt tgg agc ctg agg			625
Leu Gly Ile Ile Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg			
190	195	200	
cgg agg cag cag ctg gcc aga cag gct cgg atg aag aag gcg acc cgg			673
Arg Arg Gln Gln Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg			
205	210	215	220
ttc atc atg gtg gtg gca att gtg ttc atc aca tgc tac ctg ccc agc			721
Phe Ile Met Val Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser			
225	230	235	
gtg tct gct aga ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc			769
Val Ser Ala Arg Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys			

240	245	250	
gat ccc tct gtc cat ggg gcc ctg cac ata acc ctc agc ttc acc tac Asp Pro Ser Val His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr 255	260	265	817
atg aac agc atg ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc Met Asn Ser Met Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser 270	275	280	865
ttt ccc aaa ttc tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag Phe Pro Lys Phe Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys 285	290	295	913
cag cca gga cac tca aaa aca caa agg ccg gaa gag atg cca att tcg Gln Pro Gly His Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser 305	310	315	961
aac ctc ggt cgc agg agt tgc atc agt gtg gca aat agt ttc caa agc Asn Leu Gly Arg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser 320	325	330	1009
cag tct gat ggg caa tgg gat ccc cac att gtt gag tgg cac gtcgacggc 1060 Gln Ser Asp Gly Gln Trp Asp Pro His Ile Val Glu Trp His 335	340	345	
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Val Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Gly 20 25 30			
Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys 35 40 45			
Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu 50 55 60			
Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His 65 70 75 80			
Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala 85 90 95			
Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Asp 100 105 110			
Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser 115 120 125			
Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile			

130	135	140
Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys Val Gln Glu		
145	150	155
160		
Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp		
165	170	175
His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile		
180	185	190
Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Arg Gln Gln		
195	200	205
Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val		
210	215	220
Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg		
225	230	235
240		
Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val		
245	250	255
His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met		
260	265	270
Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe		
275	280	285
Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His		
290	295	300
Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg		
305	310	315
320		
Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly		
325	330	335
Gln Trp Asp Pro His Ile Val Glu Trp His		
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Thr Ser Arg Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys		
1	5	10
15		
acc tgg aag ccc agc act gtt tac ctt ttc aat ttg gcc gtg gct gat		
Thr Trp Lys Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp		
97		

20	25	30	
ttc ctc ctt atg atc tgc ctg cct ttt cg <sup>g</sup> aca gac tat tac ctc aga Phe Leu Leu Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg	35	40	145
35	40	45	
cgt aga cac tgg gct ttt ggg gac att ccc tgc cga gtg ggg ctc ttc Arg Arg His Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe	50	55	193
50	55	60	
acg ttg gcc atg aac agg gcc ggg agc atc gtg ttc ctt acg gtg gtg Thr Leu Ala Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val	65	70	241
65	70	75	
75	80		
gct gcg gac agg tat ttc aaa gtg gtc cac ccc cac cac gcg gtg aac Ala Ala Asp Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn	85	90	289
85	90	95	
act atc tcc acc cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg gcc Thr Ile Ser Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala	100	105	337
100	105	110	
ctg gtc atc ctg gga aca gtg tat ctt ttg ctg gag aac cat ctc tgc Leu Val Ile Leu Gly Thr Val Tyr Leu Leu Glu Asn His Leu Cys	115	120	385
115	120	125	
gtg caa gag acg gcc gtc tcc tgt gag agc ttc atc atg gag tcg gcc Val Gln Glu Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala	130	135	433
130	135	140	
aat ggc tgg cat gac atc atg ttc cag ctg gag ttc ttt atg ccc ctc Asn Gly Trp His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu	145	150	481
145	150	155	
155	160		
ggc atc atc tta ttt tgc tcc ttc aag att gtt tgg agc ctg agg cgg Gly Ile Ile Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg	165	170	529
165	170	175	
agg cag cag ctg gcc aga cag gct cgg atg aag aag gcg acc cgg ttc Arg Gln Gln Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe	180	185	577
180	185	190	
atc atg gtg gca att gtg ttc atc aca tgc tac ctg ccc agc gtg Ile Met Val Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val	195	200	625
195	200	205	
tct gct aga ctc tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat Ser Ala Arg Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp	210	215	673
210	215	220	
ccc tct gtc cat ggg gcc ctg cac ata acc ctc agc ttc acc tac atg Pro Ser Val His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met	225	230	721
225	230	235	
235	240		
aac agc atg ctg gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt Asn Ser Met Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe	245	250	769
245	250	255	
255			

ccc aaa ttc tac aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag 817  
 Pro Lys Phe Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln  
     260                     265                     270  
  
 cca gga cac tca aaa aca caa agg ccg gaa gag atg cca att tcg aac 865  
 Pro Gly His Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn  
     275                     280                     285  
  
 ctc ggt cgc agg agt tgc atc agt gtg gca aat agt ttc caa agc cag 913  
 Leu Gly Arg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln  
     290                     295                     300  
  
 tct gat ggg caa tgg gat ccc cac att gtt gag tgg cac gtc gac ggc 961  
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     20                     25                         30  
  
 Phe Leu Leu Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg  
     35                     40                         45  
  
 Arg Arg His Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe  
     50                     55                         60  
  
 Thr Leu Ala Met Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val  
     65                     70                         75                     80  
  
 Ala Ala Asp Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn  
     85                     90                         95  
  
 Thr Ile Ser Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala  
     100                     105                     110  
  
 Leu Val Ile Leu Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys  
     115                     120                     125  
  
 Val Gln Glu Thr Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala  
     130                     135                     140  
  
 Asn Gly Trp His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu  
     145                     150                     155                     160  
  
 Gly Ile Ile Leu Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg  
     165                     170                     175  
  
 Arg Gln Gln Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe

180	185	190
Ile Met Val Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val		
195	200	205
Ser Ala Arg Leu Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp		
210	215	220
Pro Ser Val His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met		
225	230	235
Asn Ser Met Leu Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe		
245	250	255
Pro Lys Phe Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln		
260	265	270
Pro Gly His Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn		
275	280	285
Leu Gly Arg Arg Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln		
290	295	300
Ser Asp Gly Gln Trp Asp Pro His Ile Val Glu Trp His Val Asp Gly		
305	310	315
320		
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Tyr Asn Gly Ser Cys Cys Arg Ile Glu Gly Asp Thr Ile Ser Gln Val		
1	5	10
		15
atg ccg ccg ctg ctc att gtg gcc ttt gtg ctg ggc gca cta ggc aat		96
Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Gly Asn		
20	25	30
ggg gtc gcc ctg tgt ggt ttc tgc ttc cac atg aag acc tgg aag ccc		144
Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys Pro		
35	40	45
agc act gtt tac ctt ttc aat ttg gcc gtg gct gat ttc ctc ctt atg		192
Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu Met		
50	55	60
atc tgc ctg cct ttt cgg aca gac tat tac ctc aga cgt aga cac tgg		240
Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His Trp		
65	70	75
		80
gct ttt ggg gac att ccc tgc cga gtg ggg ctc ttc acg ttg gcc atg		288

Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala Met			
85	90	95	
aac agg gcc ggg agc atc gtg ttc ctt acg gtg gtg gct gcg gac agg			336
Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Asp Arg			
100	105	110	
tat ttc aaa gtg gtc cac ccc cac cac gcg gtg aac act atc tcc acc			384
Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser Thr			
115	120	125	
cgg gtg gcg gct ggc atc gtc tgc acc ctg tgg gcc ctg gtc atc ctg			432
Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile Leu			
130	135	140	
gga aca gtg tat ctt ttg ctg gag aac cat ctc tgc gtg caa gag acg			480
Gly Thr Val Tyr Leu Leu Glu Asn His Leu Cys Val Gln Glu Thr			
145	150	155	160
gcc gtc tcc tgt gag agc ttc atc atg gag tcg gcc aat ggc tgg cat			528
Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp His			
165	170	175	
gac atc atg ttc cag ctg gag ttc ttt atg ccc ctc ggc atc atc tta			576
Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile Leu			
180	185	190	
ttt tgc tcc ttc aag att gtt tgg agc ctg agg cgg agg cag cag ctg			624
Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Arg Gln Gln Leu			
195	200	205	
gcc aga cag gct cgg atg aag aag gcg acc cgg ttc atc atg gtg gtg			672
Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val Val			
210	215	220	
gca att gtg ttc atc aca tgc tac ctg ccc agc gtg tct gct aga ctc			720
Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg Leu			
225	230	235	240
tat ttc ctc tgg acg gtg ccc tcg agt gcc tgc gat ccc tct gtc cat			768
Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val His			
245	250	255	
ggg gcc ctg cac ata acc ctc agc ttc acc tac atg aac agc atg ctg			816
Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met Leu			
260	265	270	
gat ccc ctg gtg tat tat ttt tca agc ccc tcc ttt ccc aaa ttc tac			864
Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe Tyr			
275	280	285	
aac aag ctc aaa atc tgc agt ctg aaa ccc aag cag cca gga cac tca			912
Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His Ser			
290	295	300	
aaa aca caa agg ccg gaa gag atg cca att tcg aac ctc ggt cgc agg			960
Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg Arg			

305	310	315	320	
agt tgc atc agt gtg gca aat agt ttc caa agc cag tct gat ggg caa Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly Gln				1008
325                           330                           335				
tgg gat ccc cac att gtt gag tgg cac gaattcggc Trp Asp Pro His Ile Val Glu Trp His				1044
340                           345				
 <b>&lt;210&gt; 94</b> <b>&lt;211&gt; 345</b> <b>&lt;212&gt; PRT</b> <b>&lt;213&gt; Homo sapiens</b>				
 <b>&lt;400&gt; 94</b>				
Tyr Asn Gly Ser Cys Cys Arg Ile Glu Gly Asp Thr Ile Ser Gln Val				
1	5	10	15	
 Met Pro Pro Leu Leu Ile Val Ala Phe Val Leu Gly Ala Leu Gly Asn				
20	25	30		
 Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys Pro				
35	40	45		
 Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu Met				
50	55	60		
 Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His Trp				
65	70	75	80	
 Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala Met				
85	90	95		
 Asn Arg Ala Gly Ser Ile Val Phe Leu Thr Val Val Ala Ala Asp Arg				
100	105	110		
 Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser Thr				
115	120	125		
 Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile Leu				
130	135	140		
 Gly Thr Val Tyr Leu Leu Leu Glu Asn His Leu Cys Val Gln Glu Thr				
145	150	155	160	
 Ala Val Ser Cys Glu Ser Phe Ile Met Glu Ser Ala Asn Gly Trp His				
165	170	175		
 Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile Leu				
180	185	190		
 Phe Cys Ser Phe Lys Ile Val Trp Ser Leu Arg Arg Gln Gln Leu				
195	200	205		
 Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val Val				
210	215	220		

Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg Leu  
 225 230 235 240

Tyr Phe Leu Trp Thr Val Pro Ser Ser Ala Cys Asp Pro Ser Val His  
 245 250 255

Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met Leu  
 260 265 270

Asp Pro Leu Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Lys Phe Tyr  
 275 280 285

Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His Ser  
 290 295 300

Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg Arg  
 305 310 315 320

Ser Cys Ile Ser Val Ala Asn Ser Phe Gln Ser Gln Ser Asp Gly Gln  
 325 330 335

Trp Asp Pro His Ile Val Glu Trp His  
 340 345

<210> 95  
 <211> 1254  
 <212> DNA  
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<220>  
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 Met Lys Arg Leu Val Cys Val Leu Leu Val Cys Ser Ser Ala  
 1 5 10

gtggca cag ttg cat aaa gat cct acc ctg gat cac cac tgg cat ctc 96  
 Val Ala Gln Leu His Lys Asp Pro Thr Leu Asp His His Trp His Leu  
 15 20 25 30

tgg aag aaa acc tat ggc aaa caa tac aag gaa aag aat gaa gca 144  
 Trp Lys Lys Thr Tyr Gly Lys Gln Tyr Lys Glu Lys Asn Glu Ala  
 35 40 45

gta cga cgt ctc atc tgg gaa aag aat cta aag ttt gtg atg ctt cac 192  
 Val Arg Arg Leu Ile Trp Glu Lys Asn Leu Lys Phe Val Met Leu His  
 50 55 60

aac ctg gag cat tca atg gga atg cac tca tac gat ctg ggc atg aac 240  
 Asn Leu Glu His Ser Met Gly Met His Ser Tyr Asp Leu Gly Met Asn  
 65 70 75

cac ctg gga gac atg acc agt gaa gaa gtg atg tct ttg atg agt tcc 288  
 His Leu Gly Asp Met Thr Ser Glu Glu Val Met Ser Leu Met Ser Ser

	80	85	90	
ctg aga gtt ccc agc cag tgg cag aga aat atc aca tat aag tca aac Leu Arg Val Pro Ser Gln Trp Gln Arg Asn Ile Thr Tyr Lys Ser Asn	95	100	105	336
110				
cct aat cggtt ctt gat tct gtgg gac tgg aga gag aaa ggg tgt Pro Asn Arg Ile Leu Pro Asp Ser Val Asp Trp Arg Glu Lys Gly Cys	115	120	125	384
125				
gtt act gaa gtgg aaa tat caa ggt tct tgt ggt gct tgc tgg gct ttc Val Thr Glu Val Lys Tyr Gln Gly Ser Cys Gly Ala Cys Trp Ala Phe	130	135	140	432
140				
agt gct gtgg ggg gcc ctgg aaaa gca cag ctgg aag ctgg aaa aca gga aag Ser Ala Val Gly Ala Leu Glu Ala Gln Leu Lys Leu Lys Thr Gly Lys	145	150	155	480
155				
ctg gtgt tct ctc agt gcc cag aac ctgg gtgt gat tgc tca act gaa aaa Leu Val Ser Leu Ser Ala Gln Asn Leu Val Asp Cys Ser Thr Glu Lys	160	165	170	528
170				
tat gga aac aaa ggc tgc aat ggt ggc ttc atg aca acg gct ttc cag Tyr Gly Asn Lys Gly Asn Gly Phe Met Thr Thr Ala Phe Gln	175	180	185	576
190				
tac atc att gat aac aag ggc atc gac tca gac gct tcc tat ccc tac Tyr Ile Ile Asp Asn Lys Gly Ile Asp Ser Asp Ala Ser Tyr Pro Tyr	195	200	205	624
205				
aaa gcc atg gat cag aaa tgt caa tat gac tca aaa tat cgt gct gcc Lys Ala Met Asp Gln Lys Cys Gln Tyr Asp Ser Lys Tyr Arg Ala Ala	210	215	220	672
220				
aca tgt tca aag tac act gaa ctt cct tat ggc aga gaa gat gtc ctgg Thr Cys Ser Lys Tyr Thr Glu Leu Pro Tyr Gly Arg Glu Asp Val Leu	225	230	235	720
235				
aaa gaa gct gtgg gcc aat aga ggc cca gtgg tct gtt ggt gta gat gcg Lys Glu Ala Val Ala Asn Arg Gly Pro Val Ser Val Gly Val Asp Ala	240	245	250	768
250				
cgt cat cct tcc ttc ctc tac aga agt ggt gtc tac tat gaa cca Arg His Pro Ser Phe Phe Leu Tyr Arg Ser Gly Val Tyr Tyr Glu Pro	255	260	265	816
270				
tcc tgt act cag aat gtgg aat cat ggt gta ctt gtgg gtt ggc tat ggt Ser Cys Thr Gln Asn Val Asn His Gly Val Leu Val Val Gly Tyr Gly	275	280	285	864
285				
gat ctt aat ggg aaa gaa tac tgg ctt gtgg aaaa aac agc tgg ggt cac Asp Leu Asn Gly Lys Glu Tyr Trp Leu Val Lys Asn Ser Trp Gly His	290	295	300	912
300				
aac ttt ggt gaa gaa gga tat att cgg atg gca aga aat aaa gga aat Asn Phe Gly Glu Glu Gly Tyr Ile Arg Met Ala Arg Asn Lys Gly Asn	305	310	315	960
315				

cat tgt ggg att gct agc ttt ccc tct tac cca gaa atc tagaggatct 1009  
 His Cys Gly Ile Ala Ser Phe Pro Ser Tyr Pro Glu Ile  
 320 325 330  
  
 ctccctttta taacaaatca agaaaatatga agcactttct cttaacttaa ttttcctgc 1069  
  
 tgtatccaga agaaaataatt gtgtcatgat taatgtgtat ttactgtact aattagaaaa 1129  
  
 tatagtttga ggccgggcac ggtggctcac gcctgtaatc ccagtacttg ggaggccaag 1189  
  
 gcaggcataat caacttgagg ccaggagtt aagagcagcc tggctaactg tgaaaccct 1249  
  
 ctact 1254  
  
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 <213> Homo sapiens  
  
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 Gln Leu His Lys Asp Pro Thr Leu Asp His His Trp His Leu Trp Lys  
 20 25 30  
  
 Lys Thr Tyr Gly Lys Gln Tyr Lys Glu Lys Asn Glu Glu Ala Val Arg  
 35 40 45  
  
 Arg Leu Ile Trp Glu Lys Asn Leu Lys Phe Val Met Leu His Asn Leu  
 50 55 60  
  
 Glu His Ser Met Gly Met His Ser Tyr Asp Leu Gly Met Asn His Leu  
 65 70 75 80  
  
 Gly Asp Met Thr Ser Glu Glu Val Met Ser Leu Met Ser Ser Leu Arg  
 85 90 95  
  
 Val Pro Ser Gln Trp Gln Arg Asn Ile Thr Tyr Lys Ser Asn Pro Asn  
 100 105 110  
  
 Arg Ile Leu Pro Asp Ser Val Asp Trp Arg Glu Lys Gly Cys Val Thr  
 115 120 125  
  
 Glu Val Lys Tyr Gln Gly Ser Cys Gly Ala Cys Trp Ala Phe Ser Ala  
 130 135 140  
  
 Val Gly Ala Leu Glu Ala Gln Leu Lys Leu Lys Thr Gly Lys Leu Val  
 145 150 155 160  
  
 Ser Leu Ser Ala Gln Asn Leu Val Asp Cys Ser Thr Glu Lys Tyr Gly  
 165 170 175  
  
 Asn Lys Gly Cys Asn Gly Phe Met Thr Thr Ala Phe Gln Tyr Ile  
 180 185 190

cat tgt ggg att gct agc ttt ccc tct tac cca gaa atc tagaggatct 1009  
 His Cys Gly Ile Ala Ser Phe Pro Ser Tyr Pro Glu Ile  
 320 325 330  
  
 ctcctttta taacaaatca agaaaatga agcactttct cttaacttaa ttttcctgc 1069  
  
 tgtatccaga agaaaataatt gtgtcatgat taatgtgtat ttactgtact aattagaaaa 1129  
  
 tatagttga ggccgggcac ggtggctcac gcctgtaatc ccagtacttg ggaggccaag 1189  
  
 gcaggcataat caacttgagg ccaggagttt aagagcagcc tggctaactg tgaaaccct 1249  
  
 ctact 1254  
  
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 Met Lys Arg Leu Val Cys Val Leu Leu Val Cys Ser Ser Ala Val Ala  
 1 5 10 15  
  
 Gln Leu His Lys Asp Pro Thr Leu Asp His His Trp His Leu Trp Lys  
 20 25 30  
  
 Lys Thr Tyr Gly Lys Gln Tyr Lys Glu Lys Asn Glu Glu Ala Val Arg  
 35 40 45  
  
 Arg Leu Ile Trp Glu Lys Asn Leu Lys Phe Val Met Leu His Asn Leu  
 50 55 60  
  
 Glu His Ser Met Gly Met His Ser Tyr Asp Leu Gly Met Asn His Leu  
 65 70 75 80  
  
 Gly Asp Met Thr Ser Glu Glu Val Met Ser Leu Met Ser Ser Leu Arg  
 85 90 95  
  
 Val Pro Ser Gln Trp Gln Arg Asn Ile Thr Tyr Lys Ser Asn Pro Asn  
 100 105 110  
  
 Arg Ile Leu Pro Asp Ser Val Asp Trp Arg Glu Lys Gly Cys Val Thr  
 115 120 125  
  
 Glu Val Lys Tyr Gln Gly Ser Cys Gly Ala Cys Trp Ala Phe Ser Ala  
 130 135 140  
  
 Val Gly Ala Leu Glu Ala Gln Leu Lys Leu Lys Thr Gly Lys Leu Val  
 145 150 155 160  
  
 Ser Leu Ser Ala Gln Asn Leu Val Asp Cys Ser Thr Glu Lys Tyr Gly  
 165 170 175  
  
 Asn Lys Gly Cys Asn Gly Phe Met Thr Thr Ala Phe Gln Tyr Ile  
 180 185 190

Ile Asp Asn Lys Gly Ile Asp Ser Asp Ala Ser Tyr Pro Tyr Lys Ala  
195 200 205

Met Asp Gln Lys Cys Gln Tyr Asp Ser Lys Tyr Arg Ala Ala Thr Cys  
210 215 220

Ser Lys Tyr Thr Glu Leu Pro Tyr Gly Arg Glu Asp Val Leu Lys Glu  
225 230 235 240

Ala Val Ala Asn Arg Gly Pro Val Ser Val Gly Val Asp Ala Arg His  
245 250 255

Pro Ser Phe Phe Leu Tyr Arg Ser Gly Val Tyr Tyr Glu Pro Ser Cys  
260 265 270

Thr Gln Asn Val Asn His Gly Val Leu Val Val Gly Tyr Gly Asp Leu  
275 280 285

Asn Gly Lys Glu Tyr Trp Leu Val Lys Asn Ser Trp Gly His Asn Phe  
290 295 300

Gly Glu Glu Gly Tyr Ile Arg Met Ala Arg Asn Lys Gly Asn His Cys  
305 310 315 320

Gly Ile Ala Ser Phe Pro Ser Tyr Pro Glu Ile  
325 330

<210> 97

<211> 667

<212> DNA

<213> Homo sapiens

<220>

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Thr Lys Leu Leu Pro Asp Ser Val Asp Trp Arg Glu Lys Gly Cys Val  
1 5 10 15

act gaa gtg aaa tat caa ggt tct tgt ggt gct tgc tgg gct ttc agt 97  
Thr Glu Val Lys Tyr Gln Gly Ser Cys Gly Ala Cys Trp Ala Phe Ser  
20 25 30

gct gtg ggg gcc ctg gaa gca cag ctg aag ctg aaa aca gga aag ctg 145  
Ala Val Gly Ala Leu Glu Ala Gln Leu Lys Leu Lys Thr Gly Lys Leu  
35 40 45

gtg tct ctc agt gcc cag aac ctg gtg gat tgc tca act gaa aaa tat 193  
Val Ser Leu Ser Ala Gln Asn Leu Val Asp Cys Ser Thr Glu Lys Tyr  
50 55 60

gga aac aaa ggc tgc aat ggt ggc ttc atg aca acg gct ttc cag tac 241  
Gly Asn Lys Gly Cys Asn Gly Phe Met Thr Thr Ala Phe Gln Tyr  
65 70 75 80

atc att gat aac aag ggc atc gac tca gac gct tcc tat ccc tac aaa Ile Ile Asp Asn Lys Gly Ile Asp Ser Asp Ala Ser Tyr Pro Tyr Lys	85	90	95	289
gcc atg gat cag aaa tgt caa tat gac tca aaa tat cgt gct gcc aca Ala Met Asp Gln Lys Cys Gln Tyr Asp Ser Lys Tyr Arg Ala Ala Thr	100	105	110	337
tgt tca aag tac act gaa ctt cct tat ggc aga gaa gat gtc ctg aaa Cys Ser Lys Tyr Thr Glu Leu Pro Tyr Gly Arg Glu Asp Val Leu Lys	115	120	125	385
gaa gct gtg gcc aat aga ggc cca gtg tct gtt ggt gta gat gcg cgt Glu Ala Val Ala Asn Arg Gly Pro Val Ser Val Gly Val Asp Ala Arg	130	135	140	433
cat cct tcc ttc ttc ctc tac aga agt ggt gtc tac tat gaa cca tcc His Pro Ser Phe Phe Leu Tyr Arg Ser Gly Val Tyr Tyr Glu Pro Ser	145	150	155	481
tgt act cag aat gtg aat cat ggt gta ctt gtg gtt ggc tat ggt gat Cys Thr Gln Asn Val Asn His Gly Val Leu Val Val Gly Tyr Gly Asp	165	170	175	529
ctt aat ggg aaa gaa tac tgg ctt gtg aaa aac agc tgg ggt cac aac Leu Asn Gly Lys Glu Tyr Trp Leu Val Lys Asn Ser Trp Gly His Asn	180	185	190	577
ttt ggt gaa gaa gga tat att cggt atg gca aga aat aaa gga aat cat Phe Gly Glu Gly Tyr Ile Arg Met Ala Arg Asn Lys Gly Asn His	195	200	205	625
tgt ggg att gct agc ttt ccc tct tac cca gaa gtc gac ggc Cys Gly Ile Ala Ser Phe Pro Ser Tyr Pro Glu Val Asp Gly	210	215	220	667
<210> 98				
<211> 222				
<212> PRT				
<213> Homo sapiens				
<400> 98				
Thr Lys Leu Leu Pro Asp Ser Val Asp Trp Arg Glu Lys Gly Cys Val				
1               5               10               15				
Thr Glu Val Lys Tyr Gln Gly Ser Cys Gly Ala Cys Trp Ala Phe Ser				
20               25               30				
Ala Val Gly Ala Leu Glu Ala Gln Leu Lys Leu Lys Thr Gly Lys Leu				
35               40               45				
Val Ser Leu Ser Ala Gln Asn Leu Val Asp Cys Ser Thr Glu Lys Tyr				
50               55               60				
Gly Asn Lys Gly Cys Asn Gly Gly Phe Met Thr Thr Ala Phe Gln Tyr				
65               70               75               80				

Ile Ile Asp Asn Lys Gly Ile Asp Ser Asp Ala Ser Tyr Pro Tyr Lys  
                   85                     90                 95  
  
 Ala Met Asp Gln Lys Cys Gln Tyr Asp Ser Lys Tyr Arg Ala Ala Thr  
                   100                 105                 110  
  
 Cys Ser Lys Tyr Thr Glu Leu Pro Tyr Gly Arg Glu Asp Val Leu Lys  
                   115                 120                 125  
  
 Glu Ala Val Ala Asn Arg Gly Pro Val Ser Val Gly Val Asp Ala Arg  
                   130                 135                 140  
  
 His Pro Ser Phe Phe Leu Tyr Arg Ser Gly Val Tyr Tyr Glu Pro Ser  
                   145                 150                 155                 160  
  
 Cys Thr Gln Asn Val Asn His Gly Val Leu Val Val Gly Tyr Gly Asp  
                   165                 170                 175  
  
 Leu Asn Gly Lys Glu Tyr Trp Leu Val Lys Asn Ser Trp Gly His Asn  
                   180                 185                 190  
  
 Phe Gly Glu Glu Gly Tyr Ile Arg Met Ala Arg Asn Lys Gly Asn His  
                   195                 200                 205  
  
 Cys Gly Ile Ala Ser Phe Pro Ser Tyr Pro Glu Val Asp Gly  
                   210                 215                 220  
  
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 ggggcc atg atc cgg aac ggg cgc ggg gct gca ggc ggc gca gag cag 108  
     Met Ile Arg Asn Gly Arg Gly Ala Ala Gly Gly Ala Glu Gln  
           1              5                 10  
  
 ccg ggc ccg ggg ggc agg cgc gcc gtg agg gtg tgg tgc gat ggc tgc 156  
   Pro Gly Pro Gly Gly Arg Arg Ala Val Arg Val Trp Cys Asp Gly Cys  
   15              20                 25                 30  
  
 tat gac atg gtg cat tac ggc cac tcc aac cag ctg cgc cag gca cgg 204  
   Tyr Asp Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln Ala Arg  
   35                 40                 45  
  
 gcc atg ggt gac tac ctc atc gta ggc gtg cac acc gat gag gag atc 252  
   Ala Met Gly Asp Tyr Leu Ile Val Gly Val His Thr Asp Glu Glu Ile  
   50                 55                 60  
  
 gcc aag cac aag ggg ccc ccg gtg ttc act cag gag gag aga tac aag 300  
   Ala Lys His Lys Gly Pro Pro Val Phe Thr Gln Glu Glu Arg Tyr Lys

65

70

75

atg gtg cag gcc atc aaa tgg gtg gac gag gtg gtg cca gcg gct ccc Met Val Gln Ala Ile Lys Trp Val Asp Glu Val Val Pro Ala Ala Pro	348
80 85 90	
tac gtc act aca cta gag acc ctg gac aaa tac aac tgt gac ttc tgt Tyr Val Thr Thr Leu Glu Thr Leu Asp Lys Tyr Asn Cys Asp Phe Cys	396
95 100 105 110	
gtt cac ggc aat gac atc acc ctg act gta gat ggc cg <sup>g</sup> gac acc tat Val His Gly Asn Asp Ile Thr Leu Thr Val Asp Gly Arg Asp Thr Tyr	444
115 120 125	
gag gaa gta aag cag gct ggg agg tac aga gaa tgc aag cgc acg caa Glu Glu Val Lys Gln Ala Gly Arg Tyr Arg Glu Cys Lys Arg Thr Gln	492
130 135 140	
ggg gtg tcc acc aca gac ctc gtg ggc cg <sup>c</sup> atg ctg gta acc aaa Gly Val Ser Thr Thr Asp Leu Val Gly Arg Met Leu Leu Val Thr Lys	540
145 150 155	
gcc cat cac agc agc cag gag atg tcc tct gag tac cgg gag tat gca Ala His His Ser Ser Gln Glu Met Ser Ser Glu Tyr Arg Glu Tyr Ala	588
160 165 170	
gac agt ttt ggc aag tgc cct ggt ggg cg <sup>g</sup> aac ccc tgg acc ggg gta Asp Ser Phe Gly Lys Cys Pro Gly Gly Arg Asn Pro Trp Thr Gly Val	636
175 180 185 190	
tcc cag ttc ctg cag aca tct cag aag atc atc cag ttt gct tct ggg Ser Gln Phe Leu Gln Thr Ser Gln Lys Ile Ile Gln Phe Ala Ser Gly	684
195 200 205	
aag gag ccc cag cca ggg gag aca gtc atc tat gtg gct ggt gcc ttc Lys Glu Pro Gln Pro Gly Glu Thr Val Ile Tyr Val Ala Gly Ala Phe	732
210 215 220	
gac ctg ttc cac atc ggg cat gtg gac ttc ctg gag aag gtg cac agg Asp Leu Phe His Ile Gly His Val Asp Phe Leu Glu Lys Val His Arg	780
225 230 235	
ctg gca gag agg ccc tac atc atc gcg ggc tta cac ttt gac cag tac Leu Ala Glu Arg Pro Tyr Ile Ile Ala Gly Leu His Phe Asp Gln Tyr	828
240 245 250	
gtg tca gaa gtg gtg att gga gcc ccg tac g <sup>c</sup> gtc aca gca gag ctc Val Ser Glu Val Val Ile Gly Ala Pro Tyr Ala Val Thr Ala Glu Leu	876
255 260 265 270	
cta agt cac ttc aag gtg gac ctg gtg tgt cac ggc aag aca gga att Leu Ser His Phe Lys Val Asp Leu Val Cys His Gly Lys Thr Gly Ile	924
275 280 285	
atc cct gac agg gat ggc tcc gac cca tac cag gag ccc aag aga agg Ile Pro Asp Arg Asp Gly Ser Asp Pro Tyr Gln Glu Pro Lys Arg Arg	972
290 295 300	

ggc atc ttc cgt cag att gac agt ggc agc aac ctc acc aca gac ctc		1020	
Gly Ile Phe Arg Gln Ile Asp Ser Gly Ser Asn Leu Thr Thr Asp Leu			
305	310	315	
atc gtc cag cgg atc atc acc aac agg ttg gag tat gag gcg cga aac		1068	
Ile Val Gln Arg Ile Ile Thr Asn Arg Leu Glu Tyr Glu Ala Arg Asn			
320	325	330	
cag aag aag gaa gcc aag gag ctg gcc ttc ctg gag gct gcc agg cag		1116	
Gln Lys Lys Glu Ala Lys Glu Leu Ala Phe Leu Glu Ala Ala Arg Gln			
335	340	345	350
cag gcg gca cag ccc ctg ggg gag cgc gat ggt gac ttc taacctggca		1165	
Gln Ala Ala Gln Pro Leu Gly Glu Arg Asp Gly Asp Phe			
355	360		
gaggccctgg ccggccctcc ccctgctctg cttctgcgcc ttctgcgttt ggacata		1222	
<210> 100			
<211> 363			
<212> PRT			
<213> Homo sapiens			
<400> 100			
Met Ile Arg Asn Gly Arg Gly Ala Ala Gly Gly Ala Glu Gln Pro Gly			
1	5	10	15
Pro Gly Gly Arg Arg Ala Val Arg Val Trp Cys Asp Gly Cys Tyr Asp			
20	25	30	
Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln Ala Arg Ala Met			
35	40	45	
Gly Asp Tyr Leu Ile Val Gly Val His Thr Asp Glu Glu Ile Ala Lys			
50	55	60	
His Lys Gly Pro Pro Val Phe Thr Gln Glu Glu Arg Tyr Lys Met Val			
65	70	75	80
Gln Ala Ile Lys Trp Val Asp Glu Val Val Pro Ala Ala Pro Tyr Val			
85	90	95	
Thr Thr Leu Glu Thr Leu Asp Lys Tyr Asn Cys Asp Phe Cys Val His			
100	105	110	
Gly Asn Asp Ile Thr Leu Thr Val Asp Gly Arg Asp Thr Tyr Glu Glu			
115	120	125	
Val Lys Gln Ala Gly Arg Tyr Arg Glu Cys Lys Arg Thr Gln Gly Val			
130	135	140	
Ser Thr Thr Asp Leu Val Gly Arg Met Leu Leu Val Thr Lys Ala His			
145	150	155	160
His Ser Ser Gln Glu Met Ser Ser Glu Tyr Arg Glu Tyr Ala Asp Ser			
165	170	175	

Phe Gly Lys Cys Pro Gly Gly Arg Asn Pro Trp Thr Gly Val Ser Gln  
180 185 190

Phe Leu Gln Thr Ser Gln Lys Ile Ile Gln Phe Ala Ser Gly Lys Glu  
195 200 205

Pro Gln Pro Gly Glu Thr Val Ile Tyr Val Ala Gly Ala Phe Asp Leu  
210 215 220

Phe His Ile Gly His Val Asp Phe Leu Glu Lys Val His Arg Leu Ala  
225 230 235 240

Glu Arg Pro Tyr Ile Ile Ala Gly Leu His Phe Asp Gln Tyr Val Ser  
245 250 255

Glu Val Val Ile Gly Ala Pro Tyr Ala Val Thr Ala Glu Leu Leu Ser  
260 265 270

His Phe Lys Val Asp Leu Val Cys His Gly Lys Thr Gly Ile Ile Pro  
275 280 285

Asp Arg Asp Gly Ser Asp Pro Tyr Gln Glu Pro Lys Arg Arg Gly Ile  
290 295 300

Phe Arg Gln Ile Asp Ser Gly Ser Asn Leu Thr Thr Asp Leu Ile Val  
305 310 315 320

Gln Arg Ile Ile Thr Asn Arg Leu Glu Tyr Glu Ala Arg Asn Gln Lys  
325 330 335

Lys Glu Ala Lys Glu Leu Ala Phe Leu Glu Ala Ala Arg Gln Gln Ala  
340 345 350

Ala Gln Pro Leu Gly Glu Arg Asp Gly Asp Phe  
355 360

<210> 101

<211> 1243

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (2)...(1243)

<400> 101

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Thr Gly Ser Thr Met Ile Arg Asn Gly Arg Gly Ala Ala Gly Gly Ala  
1 5 10 15

gag cag ccg ggc ccg ggg ggc agg cgc gcc gtg agg gtg tgg tgc gat 97  
Glu Gln Pro Gly Pro Gly Gly Arg Arg Ala Val Arg Val Trp Cys Asp  
20 25 30

ggc tgc tat gac atg gtg cat tac ggc cac tcc aac cag ctg cgc cag 145  
Gly Cys Tyr Asp Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln

35

40

45

gca	cgg	gcc	atg	gac	tac	ctc	atc	gta	ggc	gtg	cac	acc	gat	gag	193	
Ala	Arg	Ala	Met	Gly	Asp	Tyr	Leu	Ile	Val	Gly	Val	His	Thr	Asp	Glu	
50							55						60			
gag	atc	gcc	aag	cac	aag	ggg	ccc	ccg	gtg	ttc	act	cag	gag	gag	241	
Glu	Ile	Ala	Lys	His	Lys	Gly	Pro	Pro	Val	Phe	Thr	Gln	Glu	Glu	Arg	
65							70				75		80			
tac	aag	atg	gtg	cag	gcc	atc	aaa	tgg	gtg	gac	gag	gtg	gtg	cca	gcg	289
Tyr	Lys	Met	Val	Gln	Ala	Ile	Lys	Trp	Val	Asp	Glu	Val	Val	Pro	Ala	
85								90					95			
gct	ccc	tac	gtc	act	aca	cta	gag	acc	ctg	gac	aaa	tac	aac	tgt	gac	337
Ala	Pro	Tyr	Val	Thr	Thr	Leu	Glu	Thr	Leu	Asp	Lys	Tyr	Asn	Cys	Asp	
100								105					110			
ttc	tgt	gtt	cac	ggc	aat	gac	atc	acc	ctg	act	gta	gat	ggc	cgg	gac	385
Phe	Cys	Val	His	Gly	Asn	Asp	Ile	Thr	Leu	Thr	Val	Asp	Gly	Arg	Asp	
115								120					125			
acc	tat	gag	gaa	gta	aag	cag	gct	ggg	agg	tac	aga	gaa	tgc	aag	cgc	433
Thr	Tyr	Glu	Glu	Val	Lys	Gln	Ala	Gly	Arg	Tyr	Arg	Glu	Cys	Lys	Arg	
130							135					140				
acg	caa	ggg	gtg	tcc	acc	aca	gac	ctc	gtg	ggc	cgc	atg	ctg	ctg	gta	481
Thr	Gln	Gly	Val	Ser	Thr	Thr	Asp	Leu	Val	Gly	Arg	Met	Leu	Leu	Val	
145							150				155		160			
acc	aaa	gcc	cat	cac	agc	agc	cag	gag	atg	tcc	tct	gag	tac	cgg	gag	529
Thr	Lys	Ala	His	His	Ser	Ser	Gln	Glu	Met	Ser	Ser	Glu	Tyr	Arg	Glu	
165								170					175			
tat	gca	gac	agt	ttt	ggc	aag	ccc	cct	cac	ccg	ata	ccc	gcc	ggg	gac	577
Tyr	Ala	Asp	Ser	Phe	Gly	Lys	Pro	Pro	His	Pro	Ile	Pro	Ala	Gly	Asp	
180								185					190			
ata	ctt	tcc	tca	gaa	ggc	tgc	tcc	cag	tgc	cct	ggt	ggg	cgg	aac	ccc	625
Ile	Leu	Ser	Ser	Glu	Gly	Cys	Ser	Gln	Cys	Pro	Gly	Gly	Arg	Asn	Pro	
195								200					205			
tgg	acc	ggg	gta	tcc	cag	ttc	ctg	cag	aca	tct	cag	aag	atc	atc	cag	673
Trp	Thr	Gly	Val	Ser	Gln	Phe	Leu	Gln	Thr	Ser	Gln	Lys	Ile	Ile	Gln	
210							215					220				
ttt	gct	tct	ggg	aag	gag	ccc	cag	cca	ggg	gag	aca	gtc	atc	tat	gtg	721
Phe	Ala	Ser	Gly	Lys	Glu	Pro	Gln	Pro	Gly	Glu	Thr	Val	Ile	Tyr	Val	
225								230					235			
gct	ggt	gcc	ttc	gac	ctg	ttc	cac	atc	ggg	cat	gtg	gac	ttc	ctg	gag	769
Ala	Gly	Ala	Phe	Asp	Leu	Phe	His	Ile	Gly	His	Val	Asp	Phe	Leu	Glu	
245									250					255		
aag	gtg	cac	agg	ctg	gca	gag	agg	ccc	tac	atc	atc	gcg	ggc	tta	cac	817
Lys	Val	His	Arg	Leu	Ala	Glu	Arg	Pro	Tyr	Ile	Ile	Ala	Gly	Leu	His	
260									265					270		

ttt gac cag gag gtc aat cac tac aag ggg aag aac tac ccc atc atg 865  
 Phe Asp Gln Glu Val Asn His Tyr Lys Gly Lys Asn Tyr Pro Ile Met  
   275                   280                   285  
  
 aat ctg cat gaa cg<sup>g</sup> act ctg agc gtg ctg gcc tgc cg<sup>g</sup> tac gtg tca 913  
 Asn Leu His Glu Arg Thr Leu Ser Val Leu Ala Cys Arg Tyr Val Ser  
   290                   295                   300  
  
 gaa gtg gtg att gga gcc cc<sup>g</sup> tac gc<sup>g</sup> gtc aca gca gag ctc cta agt 961  
 Glu Val Val Ile Gly Ala Pro Tyr Ala Val Thr Ala Glu Leu Leu Ser  
   305                   310                   315                   320  
  
 cac ttc aag gtg gac ctg gtg tgt cac gg<sup>c</sup> aag aca gaa att atc cct 1009  
 His Phe Lys Val Asp Leu Val Cys His Gly Lys Thr Glu Ile Ile Pro  
   325                   330                   335  
  
 gac agg gat ggc tcc gac cca tac cag gag ccc aag aca agg ggc atc 1057  
 Asp Arg Asp Gly Ser Asp Pro Tyr Gln Glu Pro Lys Arg Arg Gly Ile  
   340                   345                   350  
  
 ttc cgt cag att gac agt ggc agc aac ctc acc aca gac ctc atc gtc 1105  
 Phe Arg Gln Ile Asp Ser Gly Ser Asn Leu Thr Thr Asp Leu Ile Val  
   355                   360                   365  
  
 cag cgg atc atc acc aac agg ttg gag tat gag gc<sup>g</sup> cga aac cag aag 1153  
 Gln Arg Ile Ile Thr Asn Arg Leu Glu Tyr Glu Ala Arg Asn Gln Lys  
   370                   375                   380  
  
 aag gaa gcc aag gag ctg gcc ttc ctg gag gct gcc agg cag cag gc<sup>g</sup> 1201  
 Lys Glu Ala Lys Glu Leu Ala Phe Leu Glu Ala Ala Arg Gln Gln Ala  
   385                   390                   395                   400  
  
 gca cag ccc ctg ggg gag cg<sup>c</sup> gat ggt gac ttc ctc gag ggc 1243  
 Ala Gln Pro Leu Gly Glu Arg Asp Gly Asp Phe Leu Glu Gly  
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   20                   25                   30  
  
 Gly Cys Tyr Asp Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln  
   35                   40                   45  
  
 Ala Arg Ala Met Gly Asp Tyr Leu Ile Val Gly Val His Thr Asp Glu  
   50                   55                   60  
  
 Glu Ile Ala Lys His Lys Gly Pro Pro Val Phe Thr Gln Glu Glu Arg  
   65                   70                   75                   80

Tyr Lys Met Val Gln Ala Ile Lys Trp Val Asp Glu Val Val Pro Ala  
 85 90 95  
 Ala Pro Tyr Val Thr Thr Leu Glu Thr Leu Asp Lys Tyr Asn Cys Asp  
 100 105 110  
 Phe Cys Val His Gly Asn Asp Ile Thr Leu Thr Val Asp Gly Arg Asp  
 115 120 125  
 Thr Tyr Glu Glu Val Lys Gln Ala Gly Arg Tyr Arg Glu Cys Lys Arg  
 130 135 140  
 Thr Gln Gly Val Ser Thr Thr Asp Leu Val Gly Arg Met Leu Leu Val  
 145 150 155 160  
 Thr Lys Ala His His Ser Ser Gln Glu Met Ser Ser Glu Tyr Arg Glu  
 165 170 175  
 Tyr Ala Asp Ser Phe Gly Lys Pro Pro His Pro Ile Pro Ala Gly Asp  
 180 185 190  
 Ile Leu Ser Ser Glu Gly Cys Ser Gln Cys Pro Gly Gly Arg Asn Pro  
 195 200 205  
 Trp Thr Gly Val Ser Gln Phe Leu Gln Thr Ser Gln Lys Ile Ile Gln  
 210 215 220  
 Phe Ala Ser Gly Lys Glu Pro Gln Pro Gly Glu Thr Val Ile Tyr Val  
 225 230 235 240  
 Ala Gly Ala Phe Asp Leu Phe His Ile Gly His Val Asp Phe Leu Glu  
 245 250 255  
 Lys Val His Arg Leu Ala Glu Arg Pro Tyr Ile Ile Ala Gly Leu His  
 260 265 270  
 Phe Asp Gln Glu Val Asn His Tyr Lys Gly Lys Asn Tyr Pro Ile Met  
 275 280 285  
 Asn Leu His Glu Arg Thr Leu Ser Val Leu Ala Cys Arg Tyr Val Ser  
 290 295 300  
 Glu Val Val Ile Gly Ala Pro Tyr Ala Val Thr Ala Glu Leu Leu Ser  
 305 310 315 320  
 His Phe Lys Val Asp Leu Val Cys His Gly Lys Thr Glu Ile Ile Pro  
 325 330 335  
 Asp Arg Asp Gly Ser Asp Pro Tyr Gln Glu Pro Lys Arg Arg Gly Ile  
 340 345 350  
 Phe Arg Gln Ile Asp Ser Gly Ser Asn Leu Thr Thr Asp Leu Ile Val  
 355 360 365  
 Gln Arg Ile Ile Thr Asn Arg Leu Glu Tyr Glu Ala Arg Asn Gln Lys  
 370 375 380

Lys Glu Ala Lys Glu Leu Ala Phe Leu Glu Ala Ala Arg Gln Gln Ala  
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Ala Gln Pro Leu Gly Glu Arg Asp Gly Asp Phe Leu Glu Gly  
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 Met Ile Arg Asn Gly Arg Gly Ala Ala Gly Gly Ala  
 1 5 10

gag cag cc<sup>g</sup> g<sup>gc</sup> cc<sup>g</sup> g<sup>gg</sup> g<sup>gc</sup> agg cgc gcc gt<sup>g</sup> agg gt<sup>g</sup> t<sup>gg</sup> t<sup>gc</sup> gat  
 Glu Gln Pro Gly Pro Gly Arg Arg Ala Val Arg Val Trp Cys Asp  
 15 20 25

ggc t<sup>gc</sup> tat gac atg gt<sup>g</sup> cat tac gg<sup>c</sup> cac tcc aac cag ct<sup>g</sup> cgc cag  
 Gly Cys Tyr Asp Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln  
 30 35 40

gca cg<sup>g</sup> gc<sup>c</sup> atg ggt gac tac ctc atc gta gg<sup>c</sup> gt<sup>g</sup> cac acc gat gag  
 Ala Arg Ala Met Gly Asp Tyr Leu Ile Val Gly Val His Thr Asp Glu  
 45 50 55 60

gag atc gc<sup>c</sup> aag c<sup>a</sup>c aag g<sup>gg</sup> c<sup>cc</sup> gg<sup>t</sup> t<sup>tc</sup> act c<sup>a</sup>g g<sup>ag</sup> g<sup>ag</sup> aga  
 Glu Ile Ala Lys His Lys Gly Pro Pro Val Phe Thr Gln Glu Glu Arg  
 65 70 75

tac aag atg gt<sup>g</sup> cag gc<sup>c</sup> atc aaa t<sup>gg</sup> gt<sup>g</sup> gac g<sup>ag</sup> g<sup>tg</sup> g<sup>tg</sup> c<sup>ca</sup> g<sup>cg</sup>  
 Tyr Lys Met Val Gln Ala Ile Lys Trp Val Asp Glu Val Val Pro Ala  
 80 85 90

gct ccc tac gtc act aca cta gag acc ct<sup>g</sup> gac aaa tac aac t<sup>gt</sup> gac  
 Ala Pro Tyr Val Thr Thr Leu Glu Thr Leu Asp Lys Tyr Asn Cys Asp  
 95 100 105

ttc tgt gtt cac gg<sup>c</sup> aat gac atc acc ct<sup>g</sup> act gta gat gg<sup>c</sup> cg<sup>g</sup> gac  
 Phe Cys Val His Gly Asn Asp Ile Thr Leu Thr Val Asp Gly Arg Asp  
 110 115 120

acc tat gag gaa qta aag cag g<sup>c</sup>t g<sup>gg</sup> agg tac aga gaa t<sup>gc</sup> aag cgc  
 Thr Tyr Glu Glu Val Lys Gln Ala Gly Arg Tyr Arg Glu Cys Lys Arg  
 125 130 135 140

acg caa g<sup>gg</sup> g<sup>tg</sup> t<sup>cc</sup> acc aca gac ctc gt<sup>g</sup> gg<sup>c</sup> cg<sup>c</sup> at<sup>g</sup> ct<sup>g</sup> ct<sup>g</sup> gta  
 Thr Gln Gly Val Ser Thr Thr Asp Leu Val Gly Arg Met Leu Leu Val  
 145 150 155

acc aaa gcc cat cac agc agc cag gag atg tcc tct gag tac cg <sup>g</sup> gag		529	
Thr Lys Ala His His Ser Ser Gln Glu Met Ser Ser Glu Tyr Arg Glu			
160	165	170	
 tat gca gac agt ttt ggc aag ccc cct cac ccg ata ccc gcc ggg gac		577	
Tyr Ala Asp Ser Phe Gly Lys Pro Pro His Pro Ile Pro Ala Gly Asp			
175	180	185	
 ata ctt tcc tca gaa ggc tgc tcc cag tgc cct ggt ggg cg <sup>g</sup> aac ccc		625	
Ile Leu Ser Ser Glu Gly Cys Ser Gln Cys Pro Gly Gly Arg Asn Pro			
190	195	200	
 tgg acc ggg gta tcc cag ttc ctg cag aca tct cag aag atc atc cag		673	
Trp Thr Gly Val Ser Gln Phe Leu Gln Thr Ser Gln Lys Ile Ile Gln			
205	210	215	220
 ttt gct tct ggg aag gag ccc cag cca ggg gag aca gtc atc tat gtg		721	
Phe Ala Ser Gly Lys Glu Pro Gln Pro Gly Glu Thr Val Ile Tyr Val			
225	230	235	
 gct ggt gcc ttc gac ctg ttc cac atc ggg cat gtg gac ttc ctg gag		769	
Ala Gly Ala Phe Asp Leu Phe His Ile Gly His Val Asp Phe Leu Glu			
240	245	250	
 aag gtg cac agg ctg gca gag agg ccc tac atc atc gc <sup>g</sup> ggc tta cac		817	
Lys Val His Arg Leu Ala Glu Arg Pro Tyr Ile Ile Ala Gly Leu His			
255	260	265	
 ttt gac cag gag gtc aat cac tac aag ggg aag aac tac ccc atc atg		865	
Phe Asp Gln Glu Val Asn His Tyr Lys Gly Lys Asn Tyr Pro Ile Met			
270	275	280	
 aat ctg cat gaa cg <sup>g</sup> act ctg agc gtg ctg gcc tgc cg <sup>g</sup> tac gtg tca		913	
Asn Leu His Glu Arg Thr Leu Ser Val Leu Ala Cys Arg Tyr Val Ser			
285	290	295	300
 gaa gtg gtg att gga gcc ccg tac gc <sup>g</sup> gtc aca gca gag ctc cta agt		961	
Glu Val Val Ile Gly Ala Pro Tyr Ala Val Thr Ala Glu Leu Leu Ser			
305	310	315	
 cac ttc aag gtg gac ctg gtg tgt cac gg <sup>c</sup> aag aca gaa att atc cct		1009	
His Phe Lys Val Asp Leu Val Cys His Gly Lys Thr Glu Ile Ile Pro			
320	325	330	
 gac agg gat ggc tcc gac cca tac cag gag ccc aag aga agg ggc atc		1057	
Asp Arg Asp Gly Ser Asp Pro Tyr Gln Glu Pro Lys Arg Arg Gly Ile			
335	340	345	
 ttc cgt cag att gac agt ggc agc aac ctc acc aca gac ctc atc gtc		1105	
Phe Arg Gln Ile Asp Ser Gly Ser Asn Leu Thr Thr Asp Leu Ile Val			
350	355	360	
 cag cg <sup>g</sup> atc atc acc aac agg ttg gag tat gag gc <sup>g</sup> cga aac cag aag		1153	
Gln Arg Ile Ile Thr Asn Arg Leu Glu Tyr Glu Ala Arg Asn Gln Lys			
365	370	375	380
 aag gaa gcc aag gag ctg gcc ttc ctg gag gct gcc agg cag cag gc <sup>g</sup>		1201	

Lys Glu Ala Lys Glu Leu Ala Phe Leu Glu Ala Ala Arg Gln Gln Ala  
                  385                     390                     395

gca cag ccc ctg ggg gag cgc gat ggt gac ttc taa                 1237  
 Ala Gln Pro Leu Gly Glu Arg Asp Gly Asp Phe  
                  400                     405

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Pro Gly Gly Arg Arg Ala Val Arg Val Trp Cys Asp Gly Cys Tyr Asp  
     20                 25                     30

Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln Ala Arg Ala Met  
     35                 40                     45

Gly Asp Tyr Leu Ile Val Gly Val His Thr Asp Glu Glu Ile Ala Lys  
     50                 55                     60

His Lys Gly Pro Pro Val Phe Thr Gln Glu Glu Arg Tyr Lys Met Val  
     65                 70                     75                 80

Gln Ala Ile Lys Trp Val Asp Glu Val Val Pro Ala Ala Pro Tyr Val  
     85                 90                     95

Thr Thr Leu Glu Thr Leu Asp Lys Tyr Asn Cys Asp Phe Cys Val His  
     100                105                     110

Gly Asn Asp Ile Thr Leu Thr Val Asp Gly Arg Asp Thr Tyr Glu Glu  
     115                120                     125

Val Lys Gln Ala Gly Arg Tyr Arg Glu Cys Lys Arg Thr Gln Gly Val  
     130                135                     140

Ser Thr Thr Asp Leu Val Gly Arg Met Leu Leu Val Thr Lys Ala His  
     145                150                     155                 160

His Ser Ser Gln Glu Met Ser Ser Glu Tyr Arg Glu Tyr Ala Asp Ser  
     165                170                     175

Phe Gly Lys Pro Pro His Pro Ile Pro Ala Gly Asp Ile Leu Ser Ser  
     180                185                     190

Glu Gly Cys Ser Gln Cys Pro Gly Gly Arg Asn Pro Trp Thr Gly Val  
     195                200                     205

Ser Gln Phe Leu Gln Thr Ser Gln Lys Ile Ile Gln Phe Ala Ser Gly  
     210                215                     220

Lys Glu Pro Gln Pro Gly Glu Thr Val Ile Tyr Val Ala Gly Ala Phe  
     225                230                     235                 240

Asp Leu Phe His Ile Gly His Val Asp Phe Leu Glu Lys Val His Arg  
245 250 255

Leu Ala Glu Arg Pro Tyr Ile Ile Ala Gly Leu His Phe Asp Gln Glu  
260 265 270

Val Asn His Tyr Lys Gly Lys Asn Tyr Pro Ile Met Asn Leu His Glu  
275 280 285

Arg Thr Leu Ser Val Leu Ala Cys Arg Tyr Val Ser Glu Val Val Ile  
290 295 300

Gly Ala Pro Tyr Ala Val Thr Ala Glu Leu Leu Ser His Phe Lys Val  
305 310 315 320

Asp Leu Val Cys His Gly Lys Thr Glu Ile Ile Pro Asp Arg Asp Gly  
325 330 335

Ser Asp Pro Tyr Gln Glu Pro Lys Arg Arg Gly Ile Phe Arg Gln Ile  
340 345 350

Asp Ser Gly Ser Asn Leu Thr Thr Asp Leu Ile Val Gln Arg Ile Ile  
355 360 365

Thr Asn Arg Leu Glu Tyr Glu Ala Arg Asn Gln Lys Lys Glu Ala Lys  
370 375 380

Glu Leu Ala Phe Leu Glu Ala Ala Arg Gln Ala Ala Gln Pro Leu  
385 390 395 400

Gly Glu Arg Asp Gly Asp Phe  
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<210> 105

<211> 1856

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (67) .. (1233)

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ggggcc atg atc cgg aac ggg cgc ggg gct gca ggc ggc gca gag cag 108  
Met Ile Arg Asn Gly Arg Gly Ala Ala Gly Gly Ala Glu Gln  
1 5 10

ccg ggc ccg ggg ggc agg cgc gcc gtg agg gtg tgg tgc gat ggc tgc 156  
Pro Gly Pro Gly Gly Arg Arg Ala Val Arg Val Trp Cys Asp Gly Cys  
15 20 25 30

tat gac atg gtg cat tac ggc cac tcc aac cag ctg cgc cag gca cg 204  
Tyr Asp Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln Ala Arg  
35 40 45

gcc atg ggt gac tac ctc atc gta ggc gtg cac acc gat gag gag atc Ala Met Gly Asp Tyr Leu Ile Val Gly Val His Thr Asp Glu Glu Ile	50	55	60	252
gcc aag cac aag ggg ccc ccg gtg ttc act cag gag gag aga tac aag Ala Lys His Lys Gly Pro Pro Val Phe Thr Gln Glu Glu Arg Tyr Lys	65	70	75	300
atg gtg cag gcc atc aaa tgg gtg gac gag gtg gtg cca gcg gct ccc Met Val Gln Ala Ile Lys Trp Val Asp Glu Val Val Pro Ala Ala Pro	80	85	90	348
tac gtc act aca cta gag acc ctg gac aaa tac aac tgt gac ttc tgt Tyr Val Thr Thr Leu Glu Thr Leu Asp Lys Tyr Asn Cys Asp Phe Cys	95	100	105	396
gtt cac ggc aat gac atc acc ctg act gta gat ggc cggt gac acc tat Val His Gly Asn Asp Ile Thr Leu Thr Val Asp Gly Arg Asp Thr Tyr	115	120	125	444
gag gaa gta aag cag gct ggg agg tac aga gaa tgc aag cgc acg caa Glu Glu Val Lys Gln Ala Gly Arg Tyr Arg Glu Cys Lys Arg Thr Gln	130	135	140	492
ggg gtg tcc acc aca gac ctc gtg ggc cgc atg ctg ctg gta acc aaa Gly Val Ser Thr Thr Asp Leu Val Gly Arg Met Leu Leu Val Thr Lys	145	150	155	540
gcc cat cac agc agc cag gag atg tcc tct gag tac cgg gag tat gca Ala His His Ser Ser Gln Glu Met Ser Ser Glu Tyr Arg Glu Tyr Ala	160	165	170	588
gac agt ttt ggc aag tgc cct ggt ggg cgg aac ccc tgg acc ggg gta Asp Ser Phe Gly Lys Cys Pro Gly Gly Arg Asn Pro Trp Thr Gly Val	175	180	185	636
tcc cag ttc ctg cag aca tct cag aag atc atc cag ttt gct tct ggg Ser Gln Phe Leu Gln Thr Ser Gln Lys Ile Ile Gln Phe Ala Ser Gly	195	200	205	684
aag gag ccc cag cca ggg gag aca gtc atc tat gtg gct ggt gcc ttc Lys Glu Pro Gln Pro Gly Glu Thr Val Ile Tyr Val Ala Gly Ala Phe	210	215	220	732
gac ctg ttc cac atc ggg cat gtg gac ttc ctg gag aag gtg cac agg Asp Leu Phe His Ile Gly His Val Asp Phe Leu Glu Lys Val His Arg	225	230	235	780
ctg gca gag agg ccc tac atc atc ggc tta cac ttt gac cag gag Leu Ala Glu Arg Pro Tyr Ile Ile Ala Gly Leu His Phe Asp Gln Glu	240	245	250	828
gtc aat cac tac aag ggg aag aac tac ccc atc atg aat ctg cat gaa Val Asn His Tyr Lys Gly Lys Asn Tyr Pro Ile Met Asn Leu His Glu	255	260	265	876
			270	



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Pro Gly Gly Arg Arg Ala Val Arg Val Trp Cys Asp Gly Cys Tyr Asp  
20 25 30  
  
Met Val His Tyr Gly His Ser Asn Gln Leu Arg Gln Ala Arg Ala Met  
35 40 45  
  
Gly Asp Tyr Leu Ile Val Gly Val His Thr Asp Glu Glu Ile Ala Lys  
50 55 60  
  
His Lys Gly Pro Pro Val Phe Thr Gln Glu Glu Arg Tyr Lys Met Val  
65 70 75 80  
  
Gln Ala Ile Lys Trp Val Asp Glu Val Val Pro Ala Ala Pro Tyr Val  
85 90 95  
  
Thr Thr Leu Glu Thr Leu Asp Lys Tyr Asn Cys Asp Phe Cys Val His  
100 105 110  
  
Gly Asn Asp Ile Thr Leu Thr Val Asp Gly Arg Asp Thr Tyr Glu Glu  
115 120 125  
  
Val Lys Gln Ala Gly Arg Tyr Arg Glu Cys Lys Arg Thr Gln Gly Val  
130 135 140  
  
Ser Thr Thr Asp Leu Val Gly Arg Met Leu Leu Val Thr Lys Ala His  
145 150 155 160  
  
His Ser Ser Gln Glu Met Ser Ser Glu Tyr Arg Glu Tyr Ala Asp Ser  
165 170 175  
  
Phe Gly Lys Cys Pro Gly Gly Arg Asn Pro Trp Thr Gly Val Ser Gln  
180 185 190  
  
Phe Leu Gln Thr Ser Gln Lys Ile Ile Gln Phe Ala Ser Gly Lys Glu  
195 200 205  
  
Pro Gln Pro Gly Glu Thr Val Ile Tyr Val Ala Gly Ala Phe Asp Leu  
210 215 220  
  
Phe His Ile Gly His Val Asp Phe Leu Glu Lys Val His Arg Leu Ala  
225 230 235 240  
  
Glu Arg Pro Tyr Ile Ile Ala Gly Leu His Phe Asp Gln Glu Val Asn  
245 250 255  
  
His Tyr Lys Gly Lys Asn Tyr Pro Ile Met Asn Leu His Glu Arg Thr  
260 265 270  
  
Leu Ser Val Leu Ala Cys Arg Tyr Val Ser Glu Val Val Ile Gly Ala  
275 280 285  
  
Pro Tyr Ala Val Thr Ala Glu Leu Leu Ser His Phe Lys Val Asp Leu  
290 295 300

Val Cys His Gly Lys Thr Glu Ile Ile Pro Asp Arg Asp Gly Ser Asp  
305 310 315 320

Pro Tyr Gln Glu Pro Lys Arg Arg Gly Ile Phe Arg Gln Ile Asp Ser  
 325 330 335

Gly Ser Asn Leu Thr Thr Asp Leu Ile Val Gln Arg Ile Ile Thr Asn  
 340 345 350

Arg Leu Glu Tyr Glu Ala Arg Asn Gln Lys Lys Glu Ala Lys Glu Leu  
355 360 365

Ala Phe Leu Glu Ala Ala Arg Gln Gln Ala Ala Gln Pro Leu Gly Glu  
370 375 380

Arg Asp Gly Asp Phe  
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<211> 1908

<212> DNA

<213> Homo sapiens

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Met Ala Thr Ala Glu Lys Gln Lys His Asp  
1 5 10

ggg cggttg aag atc ggc cac tac att ctg ggt gac acg ctg ggg gtc 101  
 Gly Arg Val Lys Ile Gly His Tyr Ile Leu Gly Asp Thr Leu Gly Val  
                  15                 20                 25

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ggc acc ttc ggc aaa gtg aag gtt ggc aaa cat gaa ttg act ggg cat    149
Gly Thr Phe Gly Lys Val Lys Val Gly Lys His Glu Leu Thr Gly His
                      30           35           40

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aaa gta gct gtg aag ata ctc aat cga cag aag att cg<sub>g</sub> agc ctt gat    197  
Lys Val Ala Val Lys Ile Leu Asn Arg Gln Lys Ile Arg Ser Leu Asp  
                45                50                55

gtg gta gga aaa atc cgc aga gaa att cag aac ctc aag ctt ttc agg 245  
 Val Val Gly Lys Ile Arg Arg Glu Ile Gln Asn Leu Lys Leu Phe Arg  
           60              65              70

cat cct cat ata att aaa ctg tac cag gtc atc agt aca cca tct gat	293
His Pro His Ile Ile Lys Leu Tyr Gln Val Ile Ser Thr Pro Ser Asp	
75 80 85 90	

att ttc atg gtg atg gaa tat gtc tca gga gga gag cta ttt gat tat 341  
 Ile Phe Met Val Met Glu Tyr Val Ser Gly Gly Glu Leu Phe Asp Tyr  
                  95                 100                 105

atc tgt aag aat gga agg aaa tct gat gta cct gga gta gta aaa aca Ile Cys Lys Asn Gly Arg Lys Ser Asp Val Pro Gly Val Val Lys Thr	110	115	120	389
ggc tcc acg aag gag ctg gat gaa aaa gaa agt cgg cgt ctg ttc caa Gly Ser Thr Lys Glu Leu Asp Glu Lys Glu Ser Arg Arg Leu Phe Gln	125	130	135	437
cag atc ctt tct ggt gtg gat tat tgt cac agg cat atg gtg gtc cat Gln Ile Leu Ser Gly Val Asp Tyr Cys His Arg His Met Val Val His	140	145	150	485
aga gat ttg aaa cct gaa aat gtc ctg ctt gat gca cac atg aat gca Arg Asp Leu Lys Pro Glu Asn Val Leu Asp Ala His Met Asn Ala	155	160	165	533
aag ata gct gat ttt ggt ctt tca aac atg atg tca gat ggt gaa ttt Lys Ile Ala Asp Phe Gly Leu Ser Asn Met Met Ser Asp Gly Glu Phe	175	180	185	581
tta aga aca agt tgt ggc tca ccc aac tat gct gca cca gaa gta att Leu Arg Thr Ser Cys Gly Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile	190	195	200	629
tca gga aga ttg tat gca ggc cca gag gta gat ata tgg agc agt ggg Ser Gly Arg Leu Tyr Ala Gly Pro Glu Val Asp Ile Trp Ser Ser Gly	205	210	215	677
gtt att ctc tat gct tta tta tgt gga acc ctt cca ttt gat gat gac Val Ile Leu Tyr Ala Leu Leu Cys Gly Thr Leu Pro Phe Asp Asp Asp	220	225	230	725
cat gtg cca act ctt ttt aag aag ata tgt gat ggg atc ttc tat acc His Val Pro Thr Leu Phe Lys Lys Ile Cys Asp Gly Ile Phe Tyr Thr	235	240	245	773
cct caa tat tta aat cct tct gtg att agc ctt ttg aaa cat atg ctg Pro Gln Tyr Leu Asn Pro Ser Val Ile Ser Leu Leu Lys His Met Leu	255	260	265	821
cag gtg gat ccc atg aag agg gcc tca atc aaa gat atc agg gaa cat Gln Val Asp Pro Met Lys Arg Ala Ser Ile Lys Asp Ile Arg Glu His	270	275	280	869
gaa tgg ttt aaa cag gac ctt cca aaa tat ctc ttt cct gag gat cca Glu Trp Phe Lys Gln Asp Leu Pro Lys Tyr Leu Phe Pro Glu Asp Pro	285	290	295	917
tca tat agt tca acc atg att gat gat gaa gcc tta aaa gaa gta tgt Ser Tyr Ser Ser Thr Met Ile Asp Asp Glu Ala Leu Lys Glu Val Cys	300	305	310	965
gaa aag ttt gag tgc tca gaa gag gaa gtt ctc agc tgt ctt tac aac Glu Lys Phe Glu Cys Ser Glu Glu Val Leu Ser Cys Leu Tyr Asn	315	320	325	1013
aga aat cac cag gat cct ttg gca gtt gcc tac cat ctc ata ata gat				1061

Arg Asn His Gln Asp Pro Leu Ala Val Ala Tyr His Leu Ile Ile Asp			
335	340	345	
aac agg aga ata atg aat gaa gcc aaa gat ttc tat ttg gcg aca agc			1109
Asn Arg Arg Ile Met Asn Glu Ala Lys Asp Phe Tyr Leu Ala Thr Ser			
350	355	360	
cca cct gat tct ttt ctt gat gat cat cac ctg act cggt ccc cat cct			1157
Pro Pro Asp Ser Phe Leu Asp Asp His His Leu Thr Arg Pro His Pro			
365	370	375	
gaa aga gta cca ttc ttg gtt gct gaa aca cca agg gca cgc cat acc			1205
Glu Arg Val Pro Phe Leu Val Ala Glu Thr Pro Arg Ala Arg His Thr			
380	385	390	
ctt gat gaa tta aat cca cag aaa tcc aaa cac caa ggt gta agg aaa			1253
Leu Asp Glu Leu Asn Pro Gln Lys Ser Lys His Gln Gly Val Arg Lys			
395	400	405	410
gca aaa tgg cat tta gga att aga agt caa agt cga cca aat gat att			1301
Ala Lys Trp His Leu Gly Ile Arg Ser Gln Ser Arg Pro Asn Asp Ile			
415	420	425	
atg gca gaa gta tgt aga gca atc aaa caa ttg gat tat gaa tgg aag			1349
Met Ala Glu Val Cys Arg Ala Ile Lys Gln Leu Asp Tyr Glu Trp Lys			
430	435	440	
gtt gta aac cca tat tat ttg cgt gta cga agg aag aat cct gtg aca			1397
Val Val Asn Pro Tyr Tyr Leu Arg Val Arg Arg Lys Asn Pro Val Thr			
445	450	455	
agc act tac tcc aaa atg agt cta cag tta tac caa gtg gat agt aga			1445
Ser Thr Tyr Ser Lys Met Ser Leu Gln Leu Tyr Gln Val Asp Ser Arg			
460	465	470	
act tat cta ctg gat ttc cgt agt att gat gat gaa att aca gaa gcc			1493
Thr Tyr Leu Leu Asp Phe Arg Ser Ile Asp Asp Glu Ile Thr Glu Ala			
475	480	485	490
aaa tca ggg act gct act cca cag aga tcg gga tca gtt agc aac tat			1541
Lys Ser Gly Thr Ala Thr Pro Gln Arg Ser Gly Ser Val Ser Asn Tyr			
495	500	505	
cga tct tgc caa agg agt gat tca gat gct gag gct caa gga aaa tcc			1589
Arg Ser Cys Gln Arg Ser Asp Ser Asp Ala Glu Ala Gln Gly Lys Ser			
510	515	520	
tca gaa gtt tct ctt acc tca tct gtg acc tca ctt gac tct tct cct			1637
Ser Glu Val Ser Leu Thr Ser Ser Val Thr Ser Leu Asp Ser Ser Pro			
525	530	535	
gtt gac cta act cca aga cct gga agt cac aca ata gaa ttt ttt gag			1685
Val Asp Leu Thr Pro Arg Pro Gly Ser His Thr Ile Glu Phe Phe Glu			
540	545	550	
atg tgt gca aat cta att aaa att ctt gca caa taaacagaaa actttgctta			1738
Met Cys Ala Asn Leu Ile Lys Ile Leu Ala Gln			

555	560	565
tttctttgc agcaataagc atgcataata agtcacagcc aaatgcttcc atttgtaatc 1798		
aagttataaca taattataac cgaggcgtgg cgtttggaa tcgaatttcg acagggattg 1858		
gaacatgatt tatagttaaa agcctaatacgagaaatga attaagatca 1908		
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His Tyr Ile Leu Gly Asp Thr Leu Gly Val Gly Thr Phe Gly Lys Val		
20	25	30
Lys Val Gly Lys His Glu Leu Thr Gly His Lys Val Ala Val Lys Ile		
35	40	45
Leu Asn Arg Gln Lys Ile Arg Ser Leu Asp Val Val Gly Lys Ile Arg		
50	55	60
Arg Glu Ile Gln Asn Leu Lys Leu Phe Arg His Pro His Ile Ile Lys		
65	70	75
Leu Tyr Gln Val Ile Ser Thr Pro Ser Asp Ile Phe Met Val Met Glu		
85	90	95
Tyr Val Ser Gly Gly Glu Leu Phe Asp Tyr Ile Cys Lys Asn Gly Arg		
100	105	110
Lys Ser Asp Val Pro Gly Val Val Lys Thr Gly Ser Thr Lys Glu Leu		
115	120	125
Asp Glu Lys Glu Ser Arg Arg Leu Phe Gln Gln Ile Leu Ser Gly Val		
130	135	140
Asp Tyr Cys His Arg His Met Val Val His Arg Asp Leu Lys Pro Glu		
145	150	155
160		
Asn Val Leu Leu Asp Ala His Met Asn Ala Lys Ile Ala Asp Phe Gly		
165	170	175
Leu Ser Asn Met Met Ser Asp Gly Glu Phe Leu Arg Thr Ser Cys Gly		
180	185	190
Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile Ser Gly Arg Leu Tyr Ala		
195	200	205
Gly Pro Glu Val Asp Ile Trp Ser Ser Gly Val Ile Leu Tyr Ala Leu		
210	215	220
Leu Cys Gly Thr Leu Pro Phe Asp Asp Asp His Val Pro Thr Leu Phe		

225	230	235	240
Lys Lys Ile Cys Asp Gly Ile Phe Tyr Thr Pro Gln Tyr Leu Asn Pro			
245		250	255
Ser Val Ile Ser Leu Leu Lys His Met Leu Gln Val Asp Pro Met Lys			
260		265	270
Arg Ala Ser Ile Lys Asp Ile Arg Glu His Glu Trp Phe Lys Gln Asp			
275		280	285
Leu Pro Lys Tyr Leu Phe Pro Glu Asp Pro Ser Tyr Ser Ser Thr Met			
290		295	300
Ile Asp Asp Glu Ala Leu Lys Glu Val Cys Glu Lys Phe Glu Cys Ser			
305		310	315
320			
Glu Glu Glu Val Leu Ser Cys Leu Tyr Asn Arg Asn His Gln Asp Pro			
325		330	335
Leu Ala Val Ala Tyr His Leu Ile Ile Asp Asn Arg Arg Ile Met Asn			
340		345	350
Glu Ala Lys Asp Phe Tyr Leu Ala Thr Ser Pro Pro Asp Ser Phe Leu			
355		360	365
Asp Asp His His Leu Thr Arg Pro His Pro Glu Arg Val Pro Phe Leu			
370		375	380
Val Ala Glu Thr Pro Arg Ala Arg His Thr Leu Asp Glu Leu Asn Pro			
385		390	395
400			
Gln Lys Ser Lys His Gln Gly Val Arg Lys Ala Lys Trp His Leu Gly			
405		410	415
Ile Arg Ser Gln Ser Arg Pro Asn Asp Ile Met Ala Glu Val Cys Arg			
420		425	430
Ala Ile Lys Gln Leu Asp Tyr Glu Trp Lys Val Val Asn Pro Tyr Tyr			
435		440	445
Leu Arg Val Arg Arg Lys Asn Pro Val Thr Ser Thr Tyr Ser Lys Met			
450		455	460
Ser Leu Gln Leu Tyr Gln Val Asp Ser Arg Thr Tyr Leu Leu Asp Phe			
465		470	475
480			
Arg Ser Ile Asp Asp Glu Ile Thr Glu Ala Lys Ser Gly Thr Ala Thr			
485		490	495
Pro Gln Arg Ser Gly Ser Val Ser Asn Tyr Arg Ser Cys Gln Arg Ser			
500		505	510
Asp Ser Asp Ala Glu Ala Gln Gly Lys Ser Ser Glu Val Ser Leu Thr			
515		520	525
Ser Ser Val Thr Ser Leu Asp Ser Ser Pro Val Asp Leu Thr Pro Arg			

530

535

540

Pro Gly Ser His Thr Ile Glu Phe Phe Glu Met Cys Ala Asn Leu Ile  
 545                    550                    555                    560

Lys Ile Leu Ala Gln  
 565

&lt;210&gt; 109

&lt;211&gt; 1863

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (24) .. (1673)

&lt;400&gt; 109

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 Met Ala Thr Ala Glu Lys Gln Lys His Asp  
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ggg cgg gtg aag atc ggc cac tac att ctg ggt gac acg ctg ggg gtc 101  
 Gly Arg Val Lys Ile Gly His Tyr Ile Leu Gly Asp Thr Leu Gly Val  
 15                    20                    25

ggc acc ttc ggc aaa gtg aag gtt ggc aaa cat gaa ttg act ggg cat 149  
 Gly Thr Phe Gly Lys Val Lys Val Gly Lys His Glu Leu Thr Gly His  
 30                    35                    40

aaa gta gct gtg aag ata ctc aat cga cag aag att cgg agc ctt gat 197  
 Lys Val Ala Val Lys Ile Leu Asn Arg Gln Lys Ile Arg Ser Leu Asp  
 45                    50                    55

gtg gta gga aaa atc cgc aga gaa att cag aac ctc aag ctt ttc agg 245  
 Val Val Gly Lys Ile Arg Arg Glu Ile Gln Asn Leu Lys Leu Phe Arg  
 60                    65                    70

cat cct cat ata att aaa ctg tac cag gtc atc agt aca cca tct gat 293  
 His Pro His Ile Ile Lys Leu Tyr Gln Val Ile Ser Thr Pro Ser Asp  
 75                    80                    85                    90

att ttc atg gtg atg gaa tat gtc tca gga gga gag cta ttt gat tat 341  
 Ile Phe Met Val Met Glu Tyr Val Ser Gly Gly Glu Leu Phe Asp Tyr  
 95                    100                    105

atc tgt aag aat gga agg ctg gat gaa aaa gaa agt cgg cgt ctg ttc 389  
 Ile Cys Lys Asn Gly Arg Leu Asp Glu Lys Glu Ser Arg Arg Leu Phe  
 110                    115                    120

caa cag atc ctt tct ggt gtg gat tat tgt cac agg cat atg gtg gtc 437  
 Gln Gln Ile Leu Ser Gly Val Asp Tyr Cys His Arg His Met Val Val  
 125                    130                    135

cat aga gat ttg aaa cct gaa aat gtc ctg ctt gat gca cac atg aat 485  
 His Arg Asp Leu Lys Pro Glu Asn Val Leu Leu Asp Ala His Met Asn  
 140                    145                    150

gca aag ata gat ttt ggt ctt tca aac atg atg tca gat ggt gaa		533	
Ala Lys Ile Ala Asp Phe Gly Leu Ser Asn Met Met Ser Asp Gly Glu			
155	160	165	170
 ttt tta aga aca agt tgt ggc tca ccc aac tat gct gca cca gaa gta		581	
Phe Leu Arg Thr Ser Cys Gly Ser Pro Asn Tyr Ala Ala Pro Glu Val			
175	180	185	
 att tca gga aga ttg tat gca ggc cca gag gta gat ata tgg agc agt		629	
Ile Ser Gly Arg Leu Tyr Ala Gly Pro Glu Val Asp Ile Trp Ser Ser			
190	195	200	
 ggg gtt att ctc tat gct tta tta tgt gga acc ctt cca ttt gat gat		677	
Gly Val Ile Leu Tyr Ala Leu Leu Cys Gly Thr Leu Pro Phe Asp Asp			
205	210	215	
 gac cat gtg cca act ctt ttt aag aag ata tgt gat ggg atc ttc tat		725	
Asp His Val Pro Thr Leu Phe Lys Lys Ile Cys Asp Gly Ile Phe Tyr			
220	225	230	
 acc cct caa tat tta aat cct tct gtg att agc ctt ttg aaa cat atg		773	
Thr Pro Gln Tyr Leu Asn Pro Ser Val Ile Ser Leu Leu Lys His Met			
235	240	245	250
 ctg cag gtg gat ccc atg aag agg gcc tca atc aaa gat atc agg gaa		821	
Leu Gln Val Asp Pro Met Lys Arg Ala Ser Ile Lys Asp Ile Arg Glu			
255	260	265	
 cat gaa tgg ttt aaa cag gac ctt cca aaa tat ctc ttt cct gag gat		869	
His Glu Trp Phe Lys Gln Asp Leu Pro Lys Tyr Leu Phe Pro Glu Asp			
270	275	280	
 cca tca tat agt tca acc atg att gat gat gaa gcc tta aaa gaa gta		917	
Pro Ser Tyr Ser Ser Thr Met Ile Asp Asp Glu Ala Leu Lys Glu Val			
285	290	295	
 tgt gaa aag ttt gag tgc tca gaa gag gaa gtt ctc agc tgt ctt tac		965	
Cys Glu Lys Phe Glu Cys Ser Glu Glu Glu Val Leu Ser Cys Leu Tyr			
300	305	310	
 aac aga aat cac cag gat cct ttg gca gtt gcc tac cat ctc ata ata		1013	
Asn Arg Asn His Gln Asp Pro Leu Ala Val Ala Tyr His Leu Ile Ile			
315	320	325	330
 gat aac agg aga ata atg aat gaa gcc aaa gat ttc tat ttg gcg aca		1061	
Asp Asn Arg Arg Ile Met Asn Glu Ala Lys Asp Phe Tyr Leu Ala Thr			
335	340	345	
 agc cca cct gat tct ttt ctt gat gat cat cac ctg act cggt ccc cat		1109	
Ser Pro Pro Asp Ser Phe Leu Asp Asp His His Leu Thr Arg Pro His			
350	355	360	
 cct gaa aga gta cca ttc ttg gtt gct gaa aca cca agg gca cgc cat		1157	
Pro Glu Arg Val Pro Phe Leu Val Ala Glu Thr Pro Arg Ala Arg His			
365	370	375	

acc ctt gat gaa tta aat cca cag aaa tcc aaa cac caa ggt gta agg		1205	
Thr Leu Asp Glu Leu Asn Pro Gln Lys Ser Lys His Gln Gly Val Arg			
380	385	390	
aaa gca aaa tgg cat tta gga att aga agt caa agt cga cca aat gat		1253	
Lys Ala Lys Trp His Leu Gly Ile Arg Ser Gln Ser Arg Pro Asn Asp			
395	400	405	410
att atg gca gaa gta tgt aga gca atc aaa caa ttg gat tat gaa tgg		1301	
Ile Met Ala Glu Val Cys Arg Ala Ile Lys Gln Leu Asp Tyr Glu Trp			
415	420	425	
aag gtt gta aac cca tat tat ttg cgt gta cga agg aag aat cct gtg		1349	
Lys Val Val Asn Pro Tyr Tyr Leu Arg Val Arg Arg Lys Asn Pro Val			
430	435	440	
aca agc act tac tcc aaa atg agt cta cag tta tac caa gtg gat agt		1397	
Thr Ser Thr Tyr Ser Lys Met Ser Leu Gln Leu Tyr Gln Val Asp Ser			
445	450	455	
aga act tat cta ctg gat ttc cgt agt att gat gat gaa att aca gaa		1445	
Arg Thr Tyr Leu Leu Asp Phe Arg Ser Ile Asp Asp Glu Ile Thr Glu			
460	465	470	
gcc aaa tca ggg act gct act cca cag aga tcg gga tca gtt agc aac		1493	
Ala Lys Ser Gly Thr Ala Thr Pro Gln Arg Ser Gly Ser Val Ser Asn			
475	480	485	490
tat cga tct tgc caa agg agt gat tca gat gct gag gct caa gga aaa		1541	
Tyr Arg Ser Cys Gln Arg Ser Asp Ser Asp Ala Glu Ala Gln Gly Lys			
495	500	505	
tcc tca gaa gtt tct ctt acc tca tct gtg acc tca ctt gac tct tct		1589	
Ser Ser Glu Val Ser Leu Thr Ser Ser Val Thr Ser Leu Asp Ser Ser			
510	515	520	
cct gtt gac cta act cca aga cct gga agt cac aca ata gaa ttt ttt		1637	
Pro Val Asp Leu Thr Pro Arg Pro Gly Ser His Thr Ile Glu Phe Phe			
525	530	535	
gag atg tgt gca aat cta att aaa att ctt gca caa taaacagaaaa		1683	
Glu Met Cys Ala Asn Leu Ile Lys Ile Leu Ala Gln			
540	545	550	
actttgctta tttctttgc agcaataagc atgcataata agtcacagcc aaatgctcc	1743		
atttgtaatc aagttataca taattataac cgagggctgg cgttttgaa tcgaatttcg	1803		
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			20					25						30	
Lys	Val	Gly	Lys	His	Glu	Leu	Thr	Gly	His	Lys	Val	Ala	Val	Lys	Ile
	35						40							45	
Leu	Asn	Arg	Gln	Lys	Ile	Arg	Ser	Leu	Asp	Val	Val	Gly	Lys	Ile	Arg
	50					55							60		
Arg	Glu	Ile	Gln	Asn	Leu	Lys	Leu	Phe	Arg	His	Pro	His	Ile	Ile	Lys
	65					70			75					80	
Leu	Tyr	Gln	Val	Ile	Ser	Thr	Pro	Ser	Asp	Ile	Phe	Met	Val	Met	Glu
			85					90						95	
Tyr	Val	Ser	Gly	Gly	Glu	Leu	Phe	Asp	Tyr	Ile	Cys	Lys	Asn	Gly	Arg
			100					105						110	
Leu	Asp	Glu	Lys	Glu	Ser	Arg	Arg	Leu	Phe	Gln	Gln	Ile	Leu	Ser	Gly
	115					120							125		
Val	Asp	Tyr	Cys	His	Arg	His	Met	Val	Val	His	Arg	Asp	Leu	Lys	Pro
	130					135							140		
Glu	Asn	Val	Leu	Leu	Asp	Ala	His	Met	Asn	Ala	Lys	Ile	Ala	Asp	Phe
	145					150					155			160	
Gly	Leu	Ser	Asn	Met	Met	Ser	Asp	Gly	Glu	Phe	Leu	Arg	Thr	Ser	Cys
			165					170						175	
Gly	Ser	Pro	Asn	Tyr	Ala	Ala	Pro	Glu	Val	Ile	Ser	Gly	Arg	Leu	Tyr
			180					185						190	
Ala	Gly	Pro	Glu	Val	Asp	Ile	Trp	Ser	Ser	Gly	Val	Ile	Leu	Tyr	Ala
	195					200							205		
Leu	Leu	Cys	Gly	Thr	Leu	Pro	Phe	Asp	Asp	Asp	His	Val	Pro	Thr	Leu
	210					215							220		
Phe	Lys	Lys	Ile	Cys	Asp	Gly	Ile	Phe	Tyr	Thr	Pro	Gln	Tyr	Leu	Asn
	225					230					235			240	
Pro	Ser	Val	Ile	Ser	Leu	Leu	Lys	His	Met	Leu	Gln	Val	Asp	Pro	Met
			245					250						255	
Lys	Arg	Ala	Ser	Ile	Lys	Asp	Ile	Arg	Glu	His	Glu	Trp	Phe	Lys	Gln
				260				265						270	
Asp	Leu	Pro	Lys	Tyr	Leu	Phe	Pro	Glu	Asp	Pro	Ser	Tyr	Ser	Ser	Thr
	275					280							285		
Met	Ile	Asp	Asp	Glu	Ala	Leu	Lys	Glu	Val	Cys	Glu	Lys	Phe	Glu	Cys
	290					295							300		
Ser	Glu	Glu	Glu	Val	Leu	Ser	Cys	Leu	Tyr	Asn	Arg	Asn	His	Gln	Asp

305	310	315	320
Pro Leu Ala Val Ala Tyr His Leu Ile Ile Asp Asn Arg Arg Ile Met			
325		330	335
Asn Glu Ala Lys Asp Phe Tyr Leu Ala Thr Ser Pro Pro Asp Ser Phe			
340		345	350
Leu Asp Asp His His Leu Thr Arg Pro His Pro Glu Arg Val Pro Phe			
355		360	365
Leu Val Ala Glu Thr Pro Arg Ala Arg His Thr Leu Asp Glu Leu Asn			
370		375	380
Pro Gln Lys Ser Lys His Gln Gly Val Arg Lys Ala Lys Trp His Leu			
385		390	395
Gly Ile Arg Ser Gln Ser Arg Pro Asn Asp Ile Met Ala Glu Val Cys			
405		410	415
Arg Ala Ile Lys Gln Leu Asp Tyr Glu Trp Lys Val Val Asn Pro Tyr			
420		425	430
Tyr Leu Arg Val Arg Arg Lys Asn Pro Val Thr Ser Thr Tyr Ser Lys			
435		440	445
Met Ser Leu Gln Leu Tyr Gln Val Asp Ser Arg Thr Tyr Leu Leu Asp			
450		455	460
Phe Arg Ser Ile Asp Asp Glu Ile Thr Glu Ala Lys Ser Gly Thr Ala			
465		470	475
480			
Thr Pro Gln Arg Ser Gly Ser Val Ser Asn Tyr Arg Ser Cys Gln Arg			
485		490	495
Ser Asp Ser Asp Ala Glu Ala Gln Gly Lys Ser Ser Glu Val Ser Leu			
500		505	510
Thr Ser Ser Val Thr Ser Leu Asp Ser Ser Pro Val Asp Leu Thr Pro			
515		520	525
Arg Pro Gly Ser His Thr Ile Glu Phe Phe Glu Met Cys Ala Asn Leu			
530		535	540
Ile Lys Ile Leu Ala Gln			
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                  Met Ala Thr Ala Glu Lys Gln Lys His Asp  
                  1                         5                         10  
  
 ggg cggttg aag atc ggc cac tac att ctg ggt gac acg ctg ggg gtc 101  
  Gly Arg Val Lys Ile Gly His Tyr Ile Leu Gly Asp Thr Leu Gly Val  
                  15                         20                         25  
  
 ggc acc ttc ggc aaa gtg aag gtt ggc aaa cat gaa ttg act ggg cat 149  
  Gly Thr Phe Gly Lys Val Lys Val Gly Lys His Glu Leu Thr Gly His  
                  30                         35                         40  
  
 aaa gta gct gtg aag ata ctc aat cga cag aag att cgg agc ctt gat 197  
  Lys Val Ala Val Lys Ile Leu Asn Arg Gln Lys Ile Arg Ser Leu Asp  
                  45                         50                         55  
  
 gtg gta gga aaa atc cgc aga gaa att cag aac ctc aag ctt ttc agg 245  
  Val Val Gly Lys Ile Arg Arg Glu Ile Gln Asn Leu Lys Leu Phe Arg  
                  60                         65                         70  
  
 cat cct cat ata att aaa ctg tac cag gtc atc agt aca cca tct gat 293  
  His Pro His Ile Ile Lys Leu Tyr Gln Val Ile Ser Thr Pro Ser Asp  
                  75                         80                         85                         90  
  
 att ttc atg gtg atg gaa tat gtc tca gga gga gag cta ttt gat tat 341  
  Ile Phe Met Val Met Glu Tyr Val Ser Gly Gly Glu Leu Phe Asp Tyr  
                  95                         100                         105  
  
 atc tgt aag aat gga agg ctg gat gaa aaa gaa agt cgg cgt ctg ttc 389  
  Ile Cys Lys Asn Gly Arg Leu Asp Glu Lys Glu Ser Arg Arg Leu Phe  
                  110                         115                         120  
  
 caa cag atc ctt tct ggt gtg gat tat tgt cac agg cat atg gtg gtc 437  
  Gln Gln Ile Leu Ser Gly Val Asp Tyr Cys His Arg His Met Val Val  
                  125                         130                         135  
  
 cat aga gat ttg aaa cct gaa aat gtc ctg ctt gat gca cac atg aat 485  
  His Arg Asp Leu Lys Pro Glu Asn Val Leu Leu Asp Ala His Met Asn  
                  140                         145                         150  
  
 gca aag ata gct gat ttt ggt ctt tca aac atg atg tca gat ggt gaa 533  
  Ala Lys Ile Ala Asp Phe Gly Leu Ser Asn Met Met Ser Asp Gly Glu  
                  155                         160                         165                         170  
  
 ttt tta aga aca agt tgt ggc tca ccc aac tat gct gca cca gaa gta 581  
  Phe Leu Arg Thr Ser Cys Gly Ser Pro Asn Tyr Ala Ala Pro Glu Val  
                  175                         180                         185  
  
 att tca gga aga ttg tat gca ggc cca gag gta gat ata tgg agc agt 629  
  Ile Ser Gly Arg Leu Tyr Ala Gly Pro Glu Val Asp Ile Trp Ser Ser  
                  190                         195                         200  
  
 ggg gtt att ctc tat gct tta tgt gga acc ctt cca ttt gat gat 677  
  Gly Val Ile Leu Tyr Ala Leu Leu Cys Gly Thr Leu Pro Phe Asp Asp  
                  205                         210                         215  
  
 gac cat gtg cca act ctt ttt aag aag ata tgt gat ggg atc ttc tat 725

Asp His Val Pro Thr Leu Phe Lys Lys Ile Cys Asp Gly Ile Phe Tyr			
220	225	230	
acc cct caa tat tta aat cct tct gtg att agc ctt ttg aaa cat atg			773
Thr Pro Gln Tyr Leu Asn Pro Ser Val Ile Ser Leu Leu Lys His Met			
235	240	245	250
ctg cag gtg gat ccc atg aag agg gcc tca atc aaa gat atc agg gaa			821
Leu Gln Val Asp Pro Met Lys Arg Ala Ser Ile Lys Asp Ile Arg Glu			
255	260	265	
cat gaa tgg ttt aaa cag gac ctt cca aaa tat ctc ttt cct gag gat			869
His Glu Trp Phe Lys Gln Asp Leu Pro Lys Tyr Leu Phe Pro Glu Asp			
270	275	280	
cca tca tat agt tca acc atg att gat gat gaa gcc tta aaa gaa gta			917
Pro Ser Tyr Ser Ser Thr Met Ile Asp Asp Glu Ala Leu Lys Glu Val			
285	290	295	
tgt gaa aag ttt gag tgc tca gaa gag gaa gtt ctc agc tgt ctt tac			965
Cys Glu Lys Phe Glu Cys Ser Glu Glu Glu Val Leu Ser Cys Leu Tyr			
300	305	310	
aac aga aat cac cag gat cct ttg gca gtt gcc tac cat ctc ata ata			1013
Asn Arg Asn His Gln Asp Pro Leu Ala Val Ala Tyr His Leu Ile Ile			
315	320	325	330
gat aac agg aga ata atg aat gaa gcc aaa gat ttc tat ttg gcg aca			1061
Asp Asn Arg Arg Ile Met Asn Glu Ala Lys Asp Phe Tyr Leu Ala Thr			
335	340	345	
agc cca cct gat tct ttt ctt gat gat cat cac ctg act cg <sup>g</sup> ccc cat			1109
Ser Pro Pro Asp Ser Phe Leu Asp Asp His His Leu Thr Arg Pro His			
350	355	360	
cct gaa aga gta cca ttc ttg gtt gct gaa aca cca agg gca cgc cat			1157
Pro Glu Arg Val Pro Phe Leu Val Ala Glu Thr Pro Arg Ala Arg His			
365	370	375	
acc ctt gat gaa tta aat cca cag aaa tcc aaa cac caa ggt gta agg			1205
Thr Leu Asp Glu Leu Asn Pro Gln Lys Ser Lys His Gln Gly Val Arg			
380	385	390	
aaa gca aaa tgg cat tta gga att aga agt caa agt cga cca aat gat			1253
Lys Ala Lys Trp His Leu Gly Ile Arg Ser Gln Ser Arg Pro Asn Asp			
395	400	405	410
att atg gca gaa gta tgt aga gca atc aaa caa ttg gat tat gaa tgg			1301
Ile Met Ala Glu Val Cys Arg Ala Ile Lys Gln Leu Asp Tyr Glu Trp			
415	420	425	
aag gtt gta aac cca tat tat ttg cgt gta cga agg aag aat cct gtg			1349
Lys Val Val Asn Pro Tyr Tyr Leu Arg Val Arg Arg Lys Asn Pro Val			
430	435	440	
aca agc act tac tcc aaa atg agt cta cag tta tac caa gtg gat agt			1397
Thr Ser Thr Tyr Ser Lys Met Ser Leu Gln Leu Tyr Gln Val Asp Ser			

445	450	455	
aga act tat cta ctg gat ttc cgt agt att gat gat gaa att aca gaa Arg Thr Tyr Leu Leu Asp Phe Arg Ser Ile Asp Asp Glu Ile Thr Glu			1445
460	465	470	
gcc aaa tca ggg act gct act cca cag aga tcg gga tca gtt agc aac Ala Lys Ser Gly Thr Ala Thr Pro Gln Arg Ser Gly Ser Val Ser Asn			1493
475	480	485	490
tat cga tct tgc caa agg agt gat tca gat gct gag gct caa gga aaa Tyr Arg Ser Cys Gln Arg Ser Asp Ser Ala Glu Ala Gln Gly Lys			1541
495	500	505	
tcc tca gaa gtt tct ctt acc tca tct gtg acc tca ctt gac tct tct Ser Ser Glu Val Ser Leu Thr Ser Ser Val Thr Ser Leu Asp Ser Ser			1589
510	515	520	
cct gtt gac cta act cca aga cct gga agt cac aca ata gaa ttt ttt Pro Val Asp Leu Thr Pro Arg Pro Gly Ser His Thr Ile Glu Phe Phe			1637
525	530	535	
gag atg tgt gca aat cta att aaa att ctt gca caa taaacagaaaa Glu Met Cys Ala Asn Leu Ile Lys Ile Leu Ala Gln			1683
540	545	550	
actttgctta tttctttgc agcaataagc atgcataata agtcacagcc aaatgcttcc			1743
atttgtaatc aagttataca taattataac cgagggctgg cgttttggaa tcgaatttcg			1803
acagggattg gaacatgatt tatagttaaa agcctaatacgagaaatga attaagatca			1863
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1	5	10	15
His Tyr Ile Leu Gly Asp Thr Leu Gly Val Gly Thr Phe Gly Lys Val			
20	25	30	
Lys Val Gly Lys His Glu Leu Thr Gly His Lys Val Ala Val Lys Ile			
35	40	45	
Leu Asn Arg Gln Lys Ile Arg Ser Leu Asp Val Val Gly Lys Ile Arg			
50	55	60	
Arg Glu Ile Gln Asn Leu Lys Leu Phe Arg His Pro His Ile Ile Lys			
65	70	75	80
Leu Tyr Gln Val Ile Ser Thr Pro Ser Asp Ile Phe Met Val Met Glu			
85	90	95	
Tyr Val Ser Gly Gly Glu Leu Phe Asp Tyr Ile Cys Lys Asn Gly Arg			

100	105	110
Leu Asp Glu Lys Glu Ser Arg Arg	Leu Phe Gln Gln Ile Leu Ser Gly	
115	120	125
Val Asp Tyr Cys His Arg His Met Val Val His Arg Asp Leu Lys Pro		
130	135	140
Glu Asn Val Leu Leu Asp Ala His Met Asn Ala Lys Ile Ala Asp Phe		
145	150	155
Gly Leu Ser Asn Met Met Ser Asp Gly Glu Phe Leu Arg Thr Ser Cys		
165	170	175
Gly Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile Ser Gly Arg Leu Tyr		
180	185	190
Ala Gly Pro Glu Val Asp Ile Trp Ser Ser Gly Val Ile Leu Tyr Ala		
195	200	205
Leu Leu Cys Gly Thr Leu Pro Phe Asp Asp Asp His Val Pro Thr Leu		
210	215	220
Phe Lys Lys Ile Cys Asp Gly Ile Phe Tyr Thr Pro Gln Tyr Leu Asn		
225	230	235
Pro Ser Val Ile Ser Leu Leu Lys His Met Leu Gln Val Asp Pro Met		
245	250	255
Lys Arg Ala Ser Ile Lys Asp Ile Arg Glu His Glu Trp Phe Lys Gln		
260	265	270
Asp Leu Pro Lys Tyr Leu Phe Pro Glu Asp Pro Ser Tyr Ser Ser Thr		
275	280	285
Met Ile Asp Asp Glu Ala Leu Lys Glu Val Cys Glu Lys Phe Glu Cys		
290	295	300
Ser Glu Glu Glu Val Leu Ser Cys Leu Tyr Asn Arg Asn His Gln Asp		
305	310	315
320		
Pro Leu Ala Val Ala Tyr His Leu Ile Ile Asp Asn Arg Arg Ile Met		
325	330	335
Asn Glu Ala Lys Asp Phe Tyr Leu Ala Thr Ser Pro Pro Asp Ser Phe		
340	345	350
Leu Asp Asp His His Leu Thr Arg Pro His Pro Glu Arg Val Pro Phe		
355	360	365
Leu Val Ala Glu Thr Pro Arg Ala Arg His Thr Leu Asp Glu Leu Asn		
370	375	380
Pro Gln Lys Ser Lys His Gln Gly Val Arg Lys Ala Lys Trp His Leu		
385	390	395
Gly Ile Arg Ser Gln Ser Arg Pro Asn Asp Ile Met Ala Glu Val Cys		

405	410	415	
Arg Ala Ile Lys Gln Leu Asp Tyr Glu Trp Lys Val Val Asn Pro Tyr 420	425	430	
Tyr Leu Arg Val Arg Arg Lys Asn Pro Val Thr Ser Thr Tyr Ser Lys 435	440	445	
Met Ser Leu Gln Leu Tyr Gln Val Asp Ser Arg Thr Tyr Leu Leu Asp 450	455	460	
Phe Arg Ser Ile Asp Asp Glu Ile Thr Glu Ala Lys Ser Gly Thr Ala 465	470	475	480
Thr Pro Gln Arg Ser Gly Ser Val Ser Asn Tyr Arg Ser Cys Gln Arg 485	490	495	
Ser Asp Ser Asp Ala Glu Ala Gln Gly Lys Ser Ser Glu Val Ser Leu 500	505	510	
Thr Ser Ser Val Thr Ser Leu Asp Ser Ser Pro Val Asp Leu Thr Pro 515	520	525	
Arg Pro Gly Ser His Thr Ile Glu Phe Phe Glu Met Cys Ala Asn Leu 530	535	540	
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aaagttcaat gccaggagaa ag		22	
<210> 114			
<211> 23			
<212> DNA			
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<400> 114			
taagggagcc atcctcacca cca		23	
<210> 115			
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<223> Description of Artifical Sequence: Primer/Probe

<400> 115  
aaactcttgg ctgagaaaatt cc 22

<210> 116  
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<220>  
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<400> 116  
tccatacaga tcaccaactg tg 22

<210> 117  
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<210> 118  
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<210> 119  
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<400> 119  
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<210> 120  
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tagaatctgc cgtctttga ag	22
<210> 123	
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<210> 126	
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gaccactaca agaccaccta caac	24
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<210> 142  
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<400> 142  
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<210> 143  
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<400> 143  
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<210> 144  
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<223> Description of Artifical Sequence: Primer/Probe

<400> 144  
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<210> 145  
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<223> Description of Artifical Sequence: Primer/Probe

<400> 145  
gtacatcaga ttcccttcca ttcttac 27

<210> 146  
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30